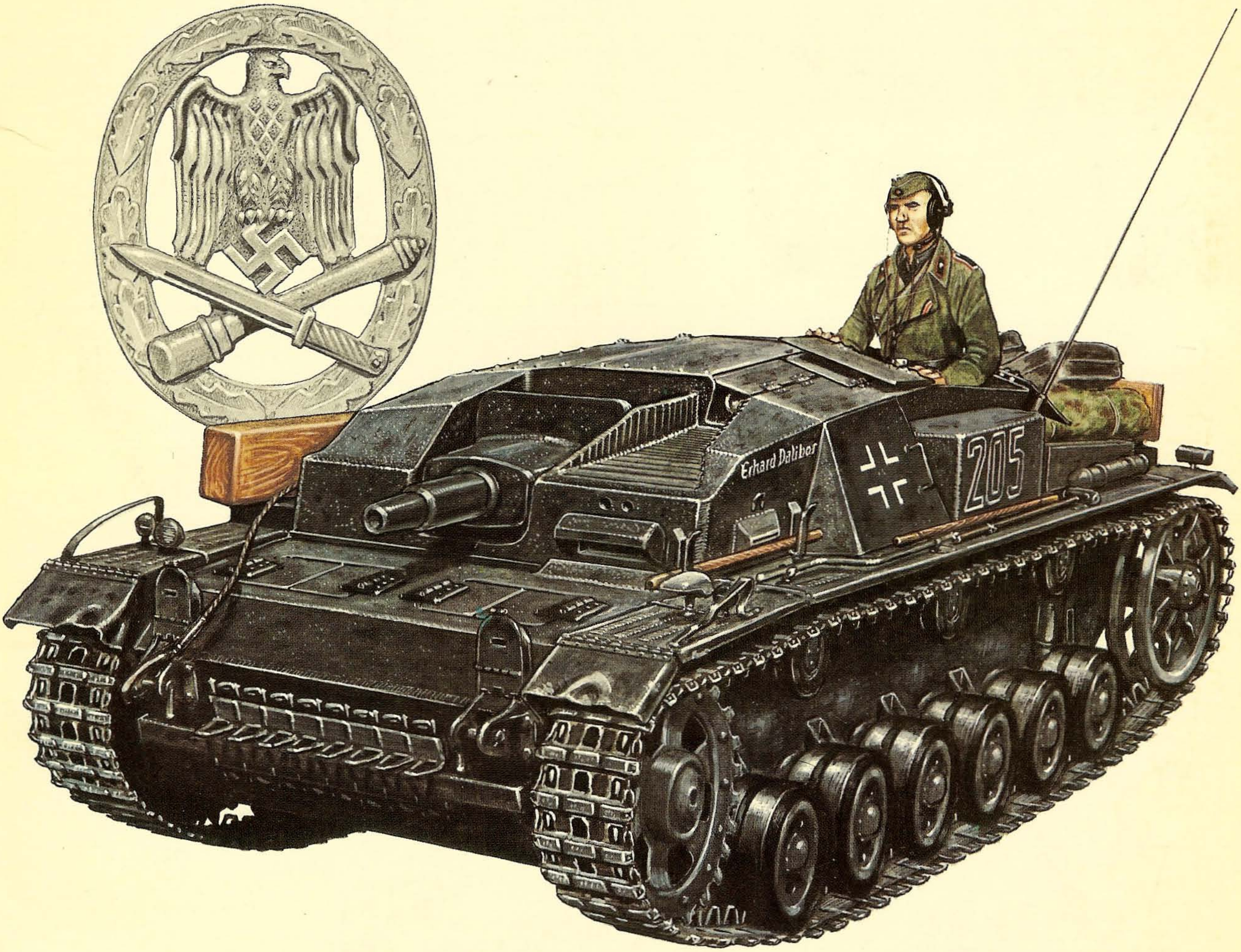
OSPREY· VANGUARD 12

STURMARTILLERIE and PANZERJÄGER


Erhard Dalibor
205

Bryan Perrett

Colour plates by
Mike Chappell

VANGUARD SERIES

EDITOR: MARTIN WINDROW

STURMARTILLERIE AND PANZERJÄGER

Text by BRYAN PERRETT

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Cover illustration
Mike Chappell's painting shows a StuG III Ausf.B of *2.Batterie, Sturmgeschütz-Abteilung 201*, as it was photographed in Russia in October 1941. Gun number '205' was named '*Erhard Dalibor*'.

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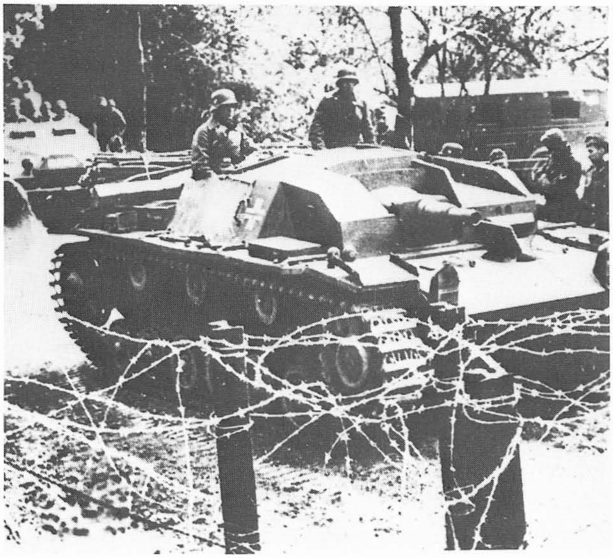
One of the two dozen or so StuG III assault guns to see service during the 1940 French campaign with Batteries 640, 659, 660 and 665. This is almost certainly an Ausf. B, employing the drive sprocket and idler of the narrow-tracked Ausf. A with spacer rings. The angled, spaced armour on the superstructure side is clearly visible, as is the broad V-shaped 'cut out' right of the gun, above the driver's compartment, leading back to the aperture of the gunner's sight. (RAC Tank Museum)



Introduction

All weapon systems are designed to overcome a particular aspect of the enemy's capacity to fight, and the majority are produced as a result of hard experience. Originally, the German assault gun was conceived to provide the infantry with the armoured support which had been lacking during the great battles of 1918, but changing conditions on the battlefields of the Second World War saw it develop into a powerful tank destroyer, although its infantry support rôle was never forgotten. The purpose-built tank destroyer had a much shorter history, and was produced to provide a direct answer to the heavy armour carried by certain British and Russian tanks.

If the much-glamorized Panzer divisions were the sword of the German Army, then the assault gun and tank destroyer units were its shield. In the last year of the war, the Panzers' once all-powerful grip on the battlefield began to fail, and more and more of the burden of anti-tank defence fell upon the assault gun and tank destroyer crews; it is largely due to their skill and professionalism that the massive Red Army did not advance even further into Europe.

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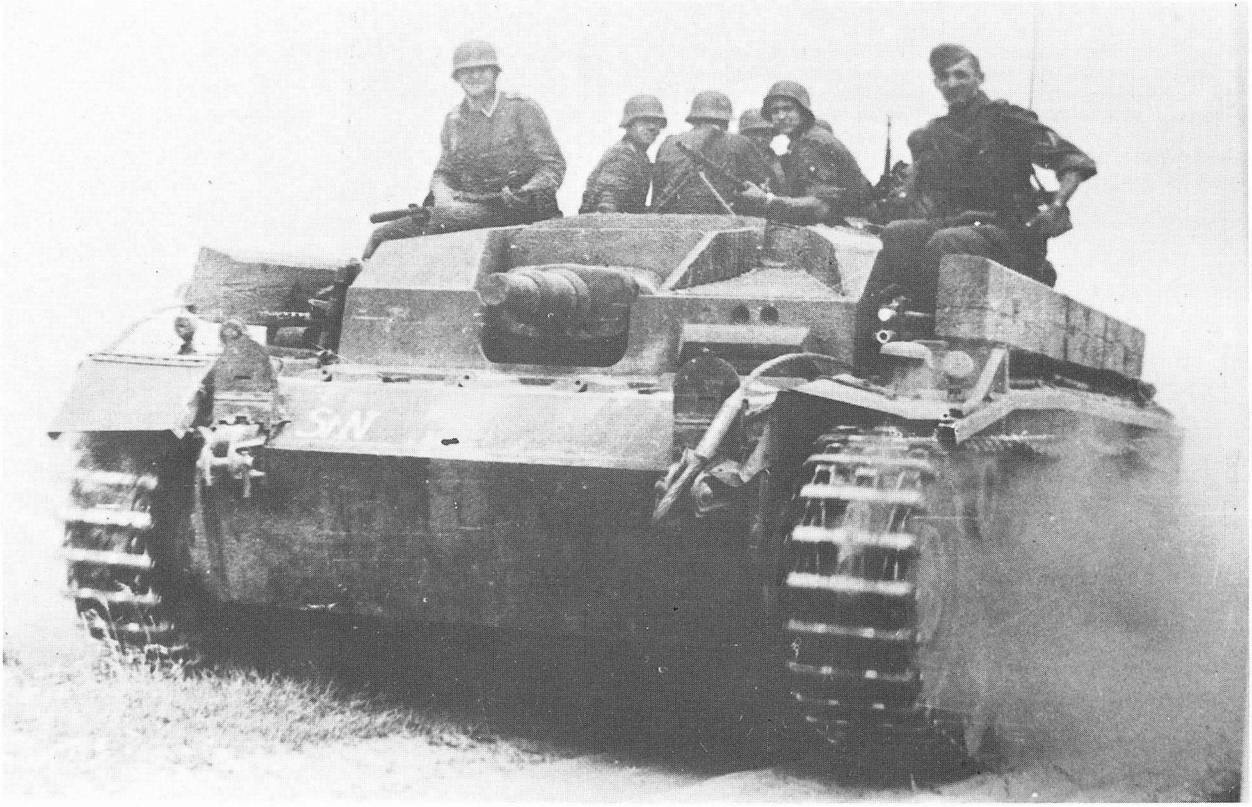
The Conception

During the First World War, only two effective means were found of breaking the deadlock of trench warfare on the Western Front. The first, employed by the British and French armies, involved the use of tanks, crushing their way through barbed wire aprons, crossing trenches and eliminating strongpoints by means of direct gunfire. In this context the tanks were simply carrying out what later became the standard rôle of the assault gun, the French even calling their own tanks *artillerie d'assaut*.

The second means, favoured by the German Army, was infiltration on a massive scale following heavy bombardment. These operations were carried out by specially trained 'Storm Troops', who by-passed opposition and continued their advance into the enemy's rear areas without pause. However, some contact with the defence could not be avoided. Even where a front had been technically broken, knots of resistance varying in size from battalions down to single machine guns continued to take their toll. Because of the shell-pitted, torn-up ground between the armies, the Storm Troops' horse-drawn supporting artillery could not be brought forward quickly enough to deal with these obstacles before heavy casualties had been incurred. Gradually, each successive offensive slowed to a standstill, until eventually the time came when the Storm Battalions had been bled so white as to be of no further use. They



Another Ausf. B, photographed in the early stages of '*Barbarossa*' with a load of infantry. The heavy 'unditching beams' are typical additions to the external stowage. The designation on the glacis suggests a battery HQ—'*Stab*'—vehicle. (Bundesarchiv)

were Germany's best, and when they had gone the remainder of the army was good only for defensive warfare.

The second means merely provided a corollary for the first. Unless machine gun posts, bunkers and strongpoints could be eliminated at the outset by direct gunfire, the infantry assault could succeed only at heavy cost. This was perfectly clear to the German General Staff in its analysis of the campaign after the war, but the provisions of the Treaty of Versailles, which specifically prohibited German acquisition or use of tracked AFVs, ensured that it would be many years before anything could be done about it.

In 1935 General Erich von Manstein* drafted a memorandum to the Chief of General Staff indicating that technical studies had shown the need for a self-propelled armoured gun to work under infantry control and give them support as required; he further suggested that each infantry division should contain an integral assault gun battalion consisting of three batteries each of six guns. Thanks to von Manstein's efforts, and the support of Generals von Fritsch and Beck, the project was approved; the artillery was given the task of designing the weapon system under the supervision of the General Staff's Technical Section 8, commanded by the then-Colonel Walter Model.

To save time it was decided to employ the already proven chassis and running gear of the Panzerkampfwagen III as a carriage. On this was placed a low, fixed superstructure with overhead cover and heavy frontal armour, mounting a limited-traverse L24 howitzer. The vehicle itself was constructed by Daimler Benz, while the gun was installed by Krupp. The completed prototype of this 'Sturmgeschütz III' was ready for trials on Kummersdorf Ranges early in 1937, and proved to be entirely satisfactory. It was hoped thereafter that by the autumn of 1939 each active infantry division would have its assault gun battalion, as would each reserve division sometime in 1940, although the number of guns in each battery had been reduced to four. In the event, such optimism was quite unfounded.

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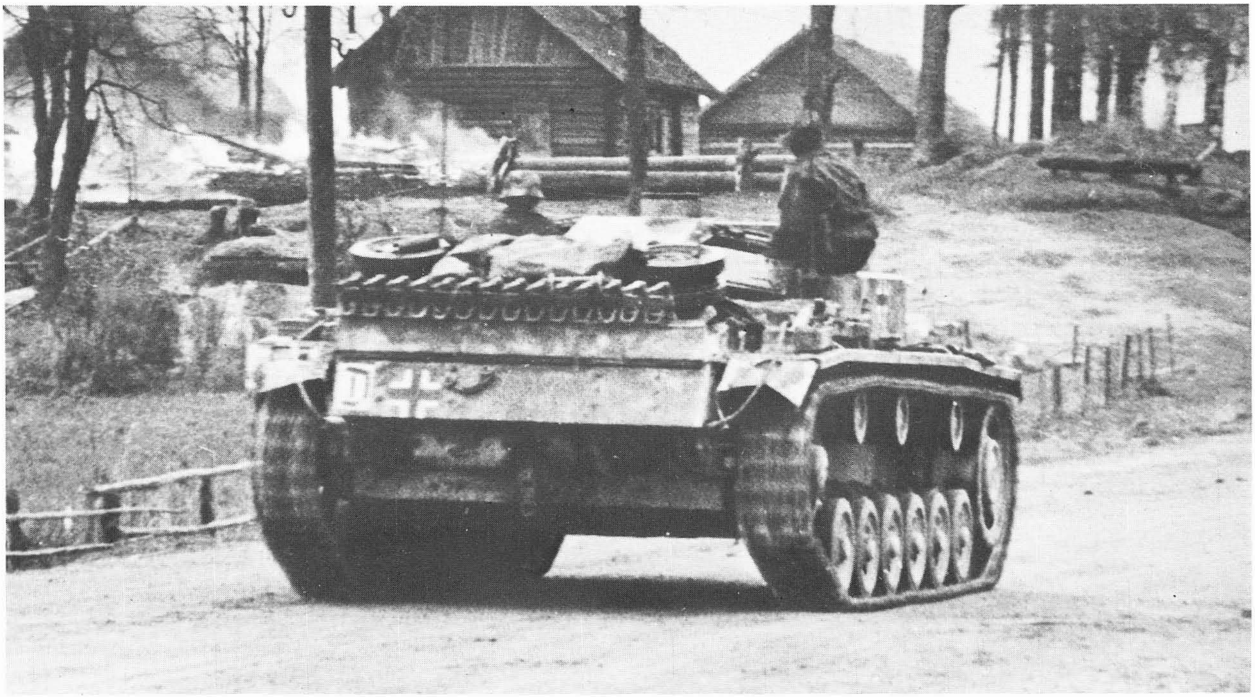
*von Manstein is regarded as the Father of Assault Artillery by the German Army, his memo containing mention of the words for the first time. It is interesting to note that even at this stage the diversion of Panzer units for infantry support in the British, French and Russian manner was considered to be a waste of resources.

First it had to be decided who was going to accept responsibility for the new weapon. Ought it to be the infantry, for whose benefit it had been developed? Or perhaps the Panzer troops, who were specialists in manning tracked vehicles? Or the artillery, who had been responsible for developing the original idea?

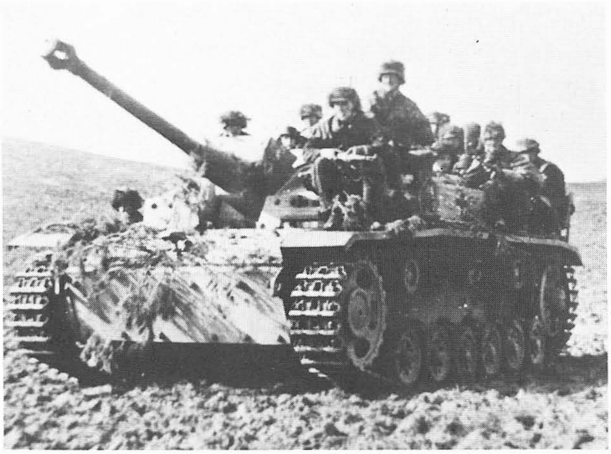
A conference was held between the respective Inspector Generals and their personal staffs. It was a conference which was to become memorable for its combination of histrionics and bathos. The Inspector General of Infantry began by explaining that his branch of service did not have the vehicle establishment that would be necessary to keep the assault guns supplied with fuel and ammunition; nor could it provide the technical services required to maintain the guns in the field. Rather than have to face these insuperable difficulties, he said he was prepared to let the whole idea drop.

The tank men wanted the project squashed at once on the grounds that it interfered with their own tank production programme, for which they wanted all available industrial capacity. In reply it was pointed out that the production of assault guns would leave the tanks free to get on with their own work; that if they were not produced, tanks would have to be diverted to support the infantry; and that the production figures for armoured carriages were rising so steadily that no manufacturing crisis was likely to arise. The Panzer officers were not impressed and remained stubborn and intractable. Tempers began to rise. Someone drew their attention to the fact that the assault gun's fixed superstructure permitted the installation of a larger calibre gun than that carried by the tanks, commenting with some asperity that their short-sighted views and lack of experience were combining to blind them to the meaning of this: that assault guns would be able to knock out enemy armour at a range beyond their beloved tanks' capacity. At this point one Panzer officer completely lost control and, banging the table furiously, yelled that the conference 'had just passed sentence of death on the Panzer arm!' Somehow, it survived . . .

It was now the turn of the Inspector General of Artillery to speak. He seems to have been a sleepy old gentleman, perhaps dreaming of the balmy



StuG III Ausf. E moving past a blazing Russian farm: the loader sits on the right-hand radio pannier, which became standard with this model. Note Gothic 'D' at left end of rear hull plate. (Bundesarchiv)



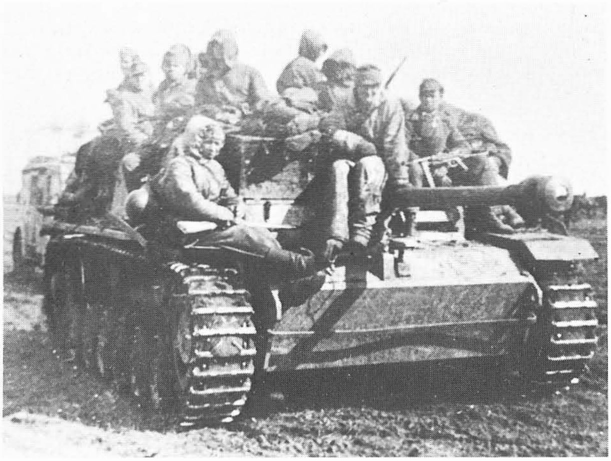
A small number of assault guns were sent to Tunisia shortly before the collapse, and this photo shows an Ausf. F, with L48 gun, in that theatre; the paint scheme seems to be overall light desert yellow, with applied scrub foliage. This may be a gun of the incomplete *'Hermann Göring'* Division. (Bundesarchiv)

days before 1914, when amid the thunder of hooves, his blue-coated gunners had swung their weapons into the battery line. He was aware that the subject under discussion concerned a new gun to support the infantry, and that it was causing a great deal of ill-feeling. In an effort to achieve a calmer atmosphere, he said that modern technology was all very well, but he felt that before any serious decision was taken trials should be held to decide whether the new support gun would not be better horse-drawn, in the manner of the First World War. While jaws gaped in astonishment, his embarrassed personal staff gathered round to explain von Manstein's ideas on tactical employment, as well as the nature of the weapon itself. It took a little time to bring the general up to date, but once he had arrived he began to warm to the concept, which he agreed was best handled by artillerymen, much to the relief of everyone present. (Thereafter, it was very much an 'in' joke among senior officers when referring to assault guns to describe them as 'Horse-Drawns'. The crews called them 'Snouts', a corruption of Geschütz into Geschnauze.)

Thus, after a period of being everyone's baby and nobody's child, the assault gun returned to the control of artillery. The Artillery School at Jütebog was detailed by the Inspector General to establish basic training facilities and a tactical school for assault artillery. In the autumn of 1937 an Experimental Battery was set up by the 7th Motorized Artillery Demonstration Regiment, and this carried out a variety of exercises throughout the following winter. Once the results of these had been evaluated, the Experimental Battery spent a year carrying out combined trials with the Infantry Demonstration Regiment at Doberitz, during which tactical principles were established for the mutual benefit of both arms.

These trials were carried out by the prototype vehicles, supplemented by PzKpfw III chassis mounting a dummy superstructure and gun. For security reasons the assault gun was referred to throughout as a 'self-propelled 37mm anti-tank gun'. During gunnery trials the assault gun crews did rather better than their Panzer counterparts using the same weapon fitted to the PzKpfw IV, being quicker onto the target and using less ammunition to destroy it. This was particularly satisfactory for the protagonists of the new weapon system, who had been forced to develop their techniques without assistance from the tank men.

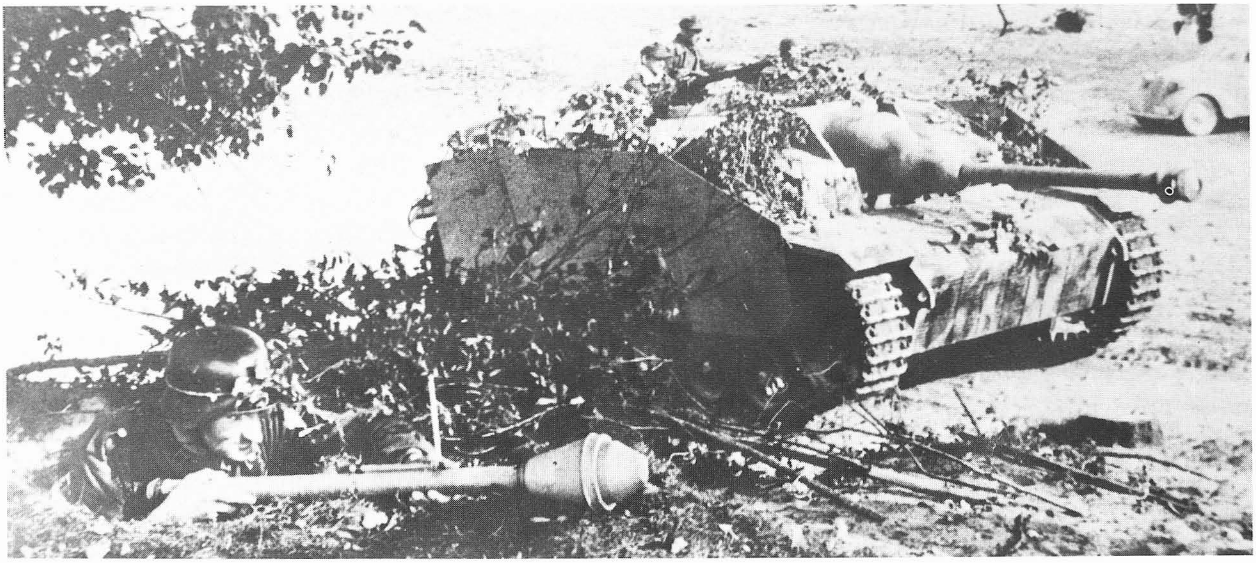
Unfortunately, the protracted nature of the troop and gunnery trials, which in themselves had proved entirely satisfactory, combined with other factors to delay the series production of assault guns, so that when war broke out not one single battery was available for service use.



An infantry section ride an assault gun in Russia. Commanders were supposed to ensure that only complete tactical units rode any one gun, to avoid confusion on the operation start line. (Bundesarchiv)

The StuG III Assault Gun

The StuG III assault gun holds a very special place in the history of German armour, if only because it was the only tracked weapon system to serve throughout the Second World War in the same basic format. This consisted of only two compartments: the rear containing the 300hp Maybach engine, and forward of it the squat, angular superstructure housing the gun and crew. The commander was located at the left rear of the fighting compartment directly behind the gunner, who was in turn seated behind the driver. To the right of the gun were the loader/operator and his ammunition racks containing 44 rounds. The radio, a 10-watt UKW, was carried in a pannier on the left, although a second radio was usually carried on the right in command vehicles.



Two concepts of anti-tank defence: a StuG III Ausf. G, with '*Saukopf*' mantlet and skirt armour, for distant targets, and the infantryman's hand-held *Panzerfaust* for close-quarter fighting. (Bundesarchiv)

The absence of turret meant a considerable saving in weight which was translated into 50mm frontal armour, far thicker than that carried by contemporary German tanks; it also meant a low silhouette, the vehicle's overall height being only 6ft 4in. On the early models the vertical side walls of the superstructure were further protected by angled 9mm plates which provided a form of spaced armour. Weighing 21½ tons, the StuG III could achieve a speed of 25mph, comparable with most medium tanks of the period.

The assault gun's most obvious fault was the limited traverse available to the gunner, but in the circumstances this was unavoidable. Other faults included the gunner's vulnerable periscopic sight and the fact that the commander was forced to observe through his open roof hatch, using periscopic binoculars. The early models also lacked a machine gun for close defence.

Nonetheless, through regular modification the StuG III kept pace with battlefield technology, the major improvements being listed below, together with their period of introduction:

Ausf. B: Summer 1940. Improved transmission fitted. Width of tracks increased to 40cm, necessitating new drive sprockets and rear idlers, although some vehicles retained their old sprockets and idlers, modified by the addition of spacer rings to compensate for the extra width. The new sprocket was slightly dished and contained six openings as opposed to the eight holes which distinguished the older version; the new idler was an eight-spoked wheel, whereas that carried by the Ausf. A had been solid.

Ausf. C and D: Early 1941. Superstructure redesigned to eliminate the gunner's sighting V-slot from the roof, which had proved to be a weakness on Ausf. A and B; the gunner's sight now protruded through the roof. The Ausf. C and D were externally identical, the latter having various internal modifications.

Ausf. E: Autumn 1941. The 9mm external superstructure side plates carried on Ausf. A–D were dispensed with. Instead of being angled, the superstructure side walls were now of vertical 30mm plate. The left radio pannier was extended forward and a right-hand pannier fitted as standard, being used for ammunition stowage when no second radio was carried.

Ausf. F: Early 1942. The first encounters with the Russian KV and T-34 tanks had shown them to be not only heavily armoured but also well armed. To counter this the assault gun was re-equipped with a longer (L43) 75mm gun which entered the vehicle through a prominent 30mm block mantlet, while additional 30mm plates were fixed to the front armour. Additional protection was sometimes obtained by pouring concrete infill into the hollows at the front of the superstructure roof. Other modifications included the installation of a ventilator in the centre of the roof, the provision of a close-defence machine gun and shield mounted in front of the loader's hatch, and re-arrangement of the engine deck hatches.

The Ausf. F had only been in production a short time when it was decided to fit the more powerful L48 gun in place of the L43. This modification was carried out retrospectively to existing Ausf. Fs as well as being incorporated into the manufacture of new vehicles, which were known as Ausf. F/8s.

The new gun provided a very welcome anti-tank capacity, for which the slight reduction in the amount of ammunition carried was a small price to pay. Officially 42 rounds could be stowed, but it is said that with careful layering it was possible to carry as many as 120 rounds—presumably with a crew of midgets!

Ausf. G: Early 1943. 80mm frontal armour became standard with this model, on which the superstructure had been widened over the tracks, incorporating the radio pannier space. The commander was provided with a cupola containing eight independently-retractable episcopes; within the cupola was a split hatch, and by opening the smaller frontal section it was possible for the commander to use his periscopic binoculars under cover of the closed rear section. Various minor modifications included the removal of the ventilator from the roof to the rear wall of the fighting compartment, and re-alignment of the loader's split hatch to open fore and aft.

While some early Ausf. Gs retained the block mantlet carried by the Ausf. F/8, the majority were fitted with a more satisfactory cast type known as a 'Pig's Head' from its shape. As a protection against hollow-charge ammunition large plates known as 'skirts' were hung along the side of the vehicle, which also received a coating of anti-magnetic *Zimmerit* paste, designed to prevent the attachment of mines and other devices in close combat. Some vehicles carried a battery of smoke bomb dischargers, located three on either side of the superstructure, but this was by no means universal.

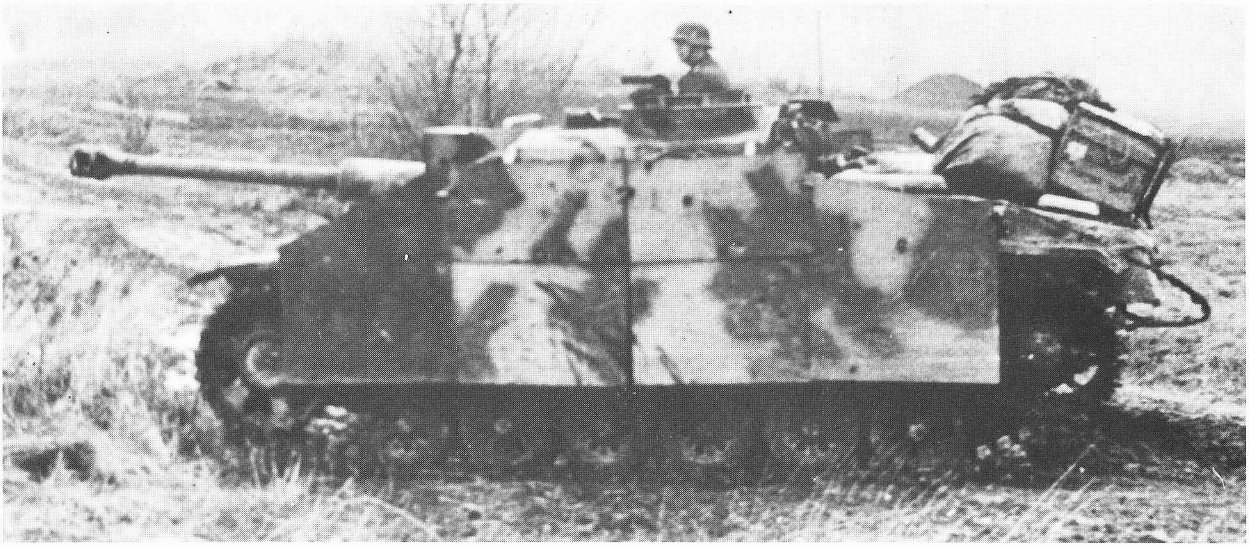
Sturmhaubitze 42: Concentration upon increasing the assault gun's anti-tank capacity tended to militate against the primary rôle for which the weapon system had been designed, i.e. infantry support by direct gunfire. The disappearance of the short 75mm L24 models was in some measure compensated for by the production of the Assault Howitzer 42, which carried a 105mm howitzer fitted to the basic StuG III Ausf. G. Although the prototype appeared in 1942 (employing an Ausf. F superstructure) quantity production did not begin until the following year, and thereafter accounted for only approximately one-eighth of assault guns manufactured. (A total of 10,500 assault guns on the PzKpfw III chassis was built throughout the war, the majority by Alkett of Berlin.)

* * *

Assault guns based on other chassis were produced in much smaller numbers; main types were as follows:

StuG IV: This vehicle was a hybrid designed to supplement standard assault gun manufacture, consisted of an Ausf. G superstructure mounted on a PzKpfw IV chassis, armament being the L48 75mm gun. It first entered service in mid-1943 and by the end of the war 632 had been built. Its PzKpfw IV running gear and prominent driving compartment make it easily recognizable.

'Brummbär': Street fighting in the cities of Russia revealed that the 75mm gun lacked the necessary punch to deal with well-constructed



The Ausf. G saw the introduction of a commander's cupola. The periscopic binoculars visible here have extension tubes fitted, to keep rain and dirt off the lenses. Note interesting angular camouflage painting of skirts, the forward plate of which seems to be a replacement from another gun. The external stowage has been arranged to leave the engine deck hatches clear. While it lasted, the cabin trunk at the back must have been a most useful acquisition! (Bundesarchiv)

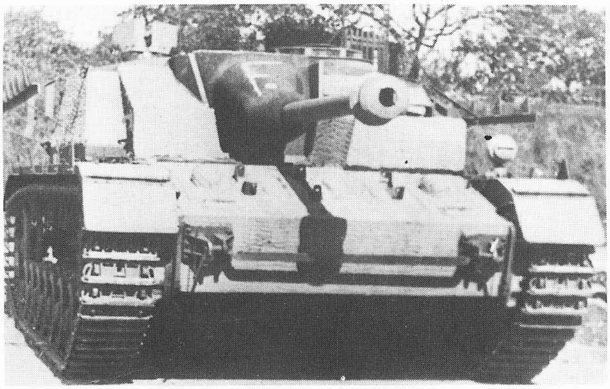
buildings. The 150mm L12 howitzer was considered to be the smallest gun with muscle enough for the job, and in October 1942 work began on producing a heavy assault gun specially designed for close combat in built-up areas.

The chassis chosen was that of the PzKpfw IV, on which was mounted a heavy, angled superstructure, the gun being housed in a large ball mounting in the 100mm front plate. Weighing 28 tons, the equipment tended to overload the chassis, causing transmission problems: but otherwise the vehicle proved to be satisfactory, and entered service in April 1943 under the nebulous title of Sturmpanzer IV, which was soon dropped in favour of the more descriptive 'Grizzly Bear'.

A total of 313 Grizzly Bears were built, running to several models which incorporated minor improvements. They served with the Heavy Infantry Gun Companies of Panzer-Grenadier Regiments, and also in 45-strong Assault Battalions which were at the disposal of senior commanders.

Sturmtiger: This represented the Grizzly Bear idea carried to extremes. While possessing a similar layout, this vehicle employed a 380mm rocket launcher to fire a 761lb spin-stabilized missile up to 6,000 yards, although normally engagements would have been carried out at much closer range. The missiles were of two types,

Swirling smoke and dust make a dramatic background for this aerial photo of StuG IIIs going into action with Panzer-Grenadiers in halftracks. The camouflage painting on these guns resembles giant chicken-mesh—regular hexagons of brown or green lines on the ochre finish. The terrain suggests the southern Russian front. (Bundesarchiv)



This head-on view of a very late production StuG III Ausf. G shows the superstructure extending out over the tracks; the toothed quick-release mounting rail for skirt plates; a liberal coating of *Zimmerit* plaster; concrete infill poured into the roof depressions; and what appears to be the remote-control roof machine gun fitted to late models. (RAC Tank Museum)

one carrying a normal high explosive payload and the other a shaped charge for use against concrete. A small crane was provided to assist the loading of the missiles into the launcher, which was fitted with a heavy counter-weight.

Built on a Tiger Ausf. E tank chassis and protected by 150mm armour, the 68-ton Assault Tiger was something of a misfit. By the time it appeared in 1944 the German Army was wholly engaged in defensive battles, and its potential rôle had long since vanished. Only a handful of these monolithic vehicles were produced.

Manning and Organization

Assault artillerymen were all volunteers and were considered to be the élite of their service. As well as gaining numerous awards of the Iron Cross First and Second Class, the Assault Artillery branch won no less than 325 German Crosses in Gold and 140 Knight's Crosses, fourteen holders of the latter being further awarded Oakleaves to their decorations. It goes almost without saying that assault artillerymen were extremely proud of their calling and their *esprit de corps* was always high. Many units chose distinctive identification symbols, some of which are illustrated in the colour plates, which were painted on their vehicles apparently at the discretion of their current commanding officers.

By 1940 the number of guns in the assault battery had been increased again from four to six, and the success of the few units engaged in France led to considerable enthusiasm for the assault gun idea. Full-scale production was commenced and the Artillery School at Jütebog began training the first *Abteilungen* or battalions.

Initially the pace was slow, only two battalions being produced every three months, but this later accelerated to three battalions every two months. In 1943 the Assault Artillery established its own school at Burg near Magdeburg, and the flow of trained units and replacement personnel increased rapidly. Eventually some 70 battalions were produced, excluding units specially trained for the tank destroyer rôle, or sent to reinforce understrength Panzer Divisions.

The new battalions consisted of a Headquarters Battery (containing the commanding officer's assault gun, the battalion transport echelon, recovery, workshop and medical services) plus three Assault Batteries, each of three two-gun troops, battery echelon and fitters. The internal organization of the battery was later strengthened by adding one gun to each troop and by providing the battery commander with his own gun in place of the armoured command vehicle from which he had originally exercised control, thus giving a total Abteilung strength of 31 fighting vehicles.

In 1943 the Sturmgeschütz Abteilung title was changed to Sturmgeschütz Brigade, largely in the hope that this would suggest to the enemy that larger assault gun formations were being employed than was the case.

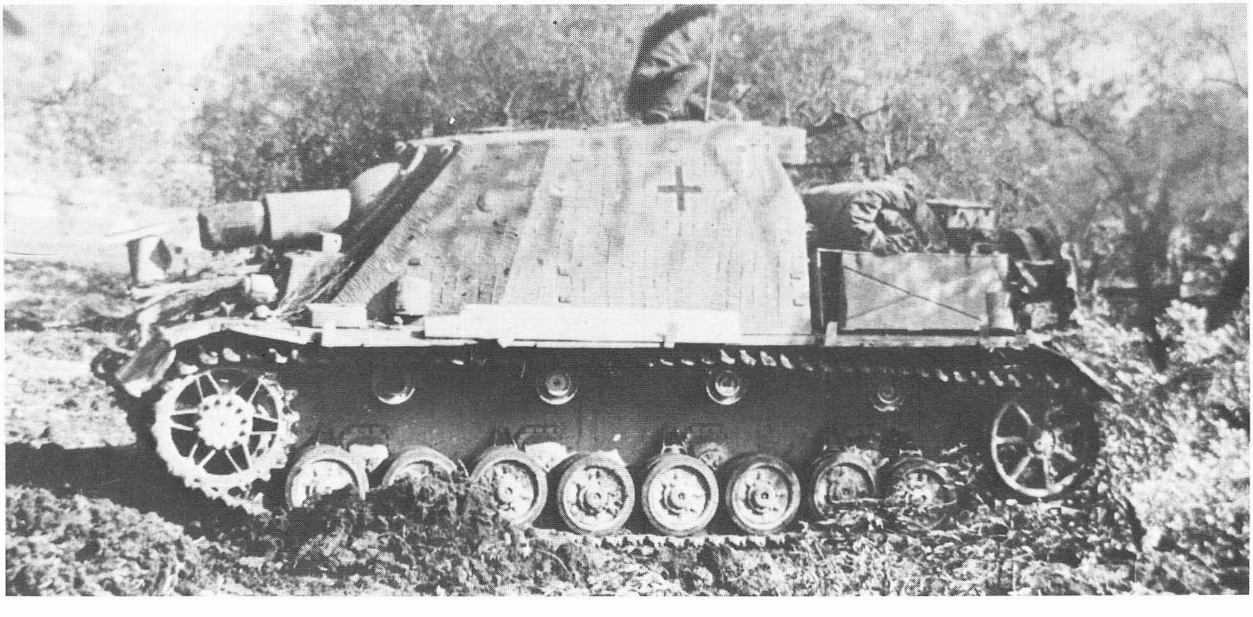
In 1944 the first of the Sturmartillerie Brigades were formed. More than a slight change in nomenclature was involved. These units had a much larger establishment, comprising three L48 guns in Brigade HQ, two L48 guns in each Battery HQ, plus two troops of four L48 guns and one troop of four StuH 42 howitzers per battery: a total of 45 fighting vehicles. For defence against infantry anti-tank weapons in close country or during street fighting, the establishment was further swelled by the incorporation of a Grenadier Escort Battery with a nominal strength of two officers and 196 men, mostly equipped with assault rifles, and which included a small pioneer troop. It had been hoped to raise all Assault Gun Brigades to Assault Artillery Brigade strength, but this was not possible.

Meanwhile, at the beginning of 1943, the German tank industry had fallen into complete chaos, and manufacture of assault guns was steadily out-stripping that of battle tanks, which were more difficult and expensive to construct. Production of the PzKpfw III had been discontinued in 1942, save for the chassis which were required for assault guns; now there was a suicidal but apparently serious suggestion that the PzKpfw IV, the mainstay of the Panzer Divisions, might be cancelled as well in order to concentrate on Tiger and Panther production. A dangerously high percentage of PzKpfw IV chassis had already been allocated for self-propelled artillery, tank destroyers and assault guns; Tigers were coming off the assembly line at the rate of only 25 per month; and the Panther had not yet entered full production.

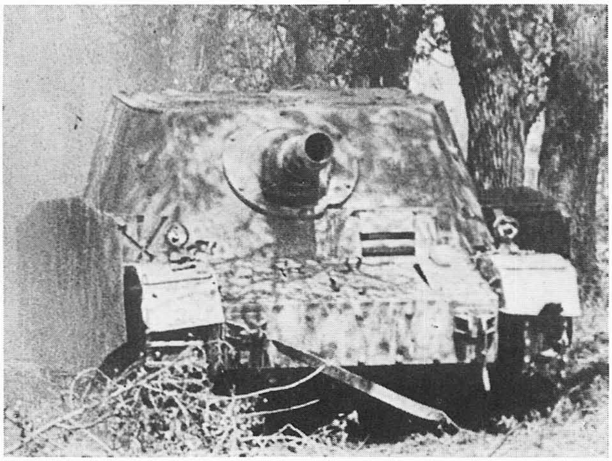
To restore some semblance of order Hitler was compelled to recall the brilliant but temporarily disgraced Colonel-General Heinz Guderian and appoint him Inspector General of Armoured Troops with a very wide brief which included the Waffen-SS and Luftwaffe, but not the assault artillery. When Guderian attended a senior officers' conference on 9 March 1943 he attempted to rectify this omission, but his suggestion that all assault artillery should become subordinate to him was howled down, apparently to Hitler's delight. The reason for this was not—as General Schmundt, Hitler's principal adjutant, so fatuously claimed—that the assault artillery was the only branch which enabled gunners to win the Knight's Cross; rather it was a matter of changing battlefield technology.

Following the introduction of hollow-charge ammunition which could penetrate any thickness of tank armour, and the proliferation of such devices among the infantry, Hitler had already intuitively grasped that the tank's era of total domination was at an end. His thoughts were now concentrated on anti-tank defence, and since the assault guns performed this aspect of their work most efficiently and were not suffering as a result of the production crisis, he saw no reason why they should be subject to interference. It was a view that many senior officers supported.

Guderian had a second point to make concerning assault artillery, and one which was obviously valid. 'Anti-tank defence will devolve more and more on the assault guns, since all our other anti-tank weapons are becoming increasingly ineffective against the new enemy equipment . . . All divisions on the main battle fronts, therefore, need to be supplied with a certain



Excellent view of a *Brummbär* in Italy, 1944—see colour plate F3. The operator is extending his aerial in preparation for netting in. (Bundesarchiv)



Abandoned *Brummbär* with skirt armour; note late driver's vision block, identical to that used on the Tiger Ausf. E, and details of the ball-mounted 150mm howitzer. (RAC Tank Museum)

complement of these weapons; the secondary fronts will have to make do with a higher command reserve of assault guns, while the divisions are for the time being equipped with self-propelled anti-tank guns. In order to economize on personnel and material, a gradual amalgamation of the assault gun battalions and tank destroyer battalions is necessary.'*

This was accepted, after what Guderian describes as a 'lively discussion'. In the meantime, the tank element of most Panzer divisions had fallen to a dangerously low level, and out of sheer necessity several had to be urgently reinforced with assault guns, which could obviously provide heavy fire support in the forward zone, but which could not be expected to carry out the same functions as the tanks themselves.

In general, assault artillery was allocated as and where it was needed. Very few divisions had an integral assault gun battalion, but the expanding '*Grossdeutschland*' formation was an exception, as were the SS Panzer Divisions '*Leibstandarte Adolf Hitler*' and '*Das Reich*', and the Luftwaffe Panzer Division '*Hermann Göring*'.**

Tactics

The following extracts have been taken from what might be termed 'The Assault Gun Commander's Handbook', issued in 1944:

'General Principles

You have the task of providing immediate direct support for the infantry in all situations in the forward zone of action, beating down and suppressing the fire of the enemy's heavy weapons with that of your own.

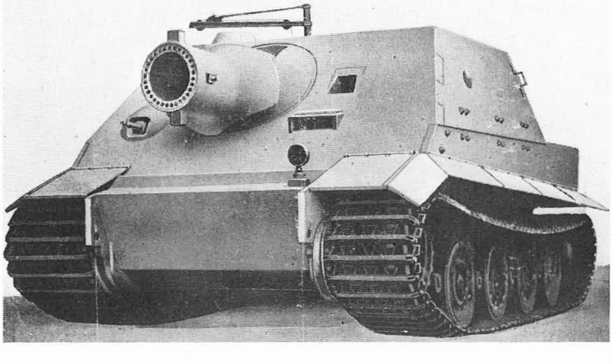
The assault gun combines firepower with mobility and shock action. Its protected weapon system and immediate direct fire capability enables it to accompany the infantry anywhere on the battlefield, providing them with close physical and moral support. Assault guns are employed according to artillery principles and should be regarded as first line artillery. Concentration is a special feature of their operations; abandonment of this principle leads to unnecessary loss.

In every action the destruction of the enemy's tanks is a consideration of the utmost importance. Nonetheless, you must not permit your assault guns to be employed solely as tank destroyers.

In the counter-attack rôle assault guns are suitable for employment as a shock reserve against enemy tank attacks or penetrations of our own lines. As the spearhead of the advance or pursuit they can quickly overcome points of resistance.

When breaking off action and disengaging assault guns, by virtue of their mobility and firepower, are the mainstay of the rearguard.

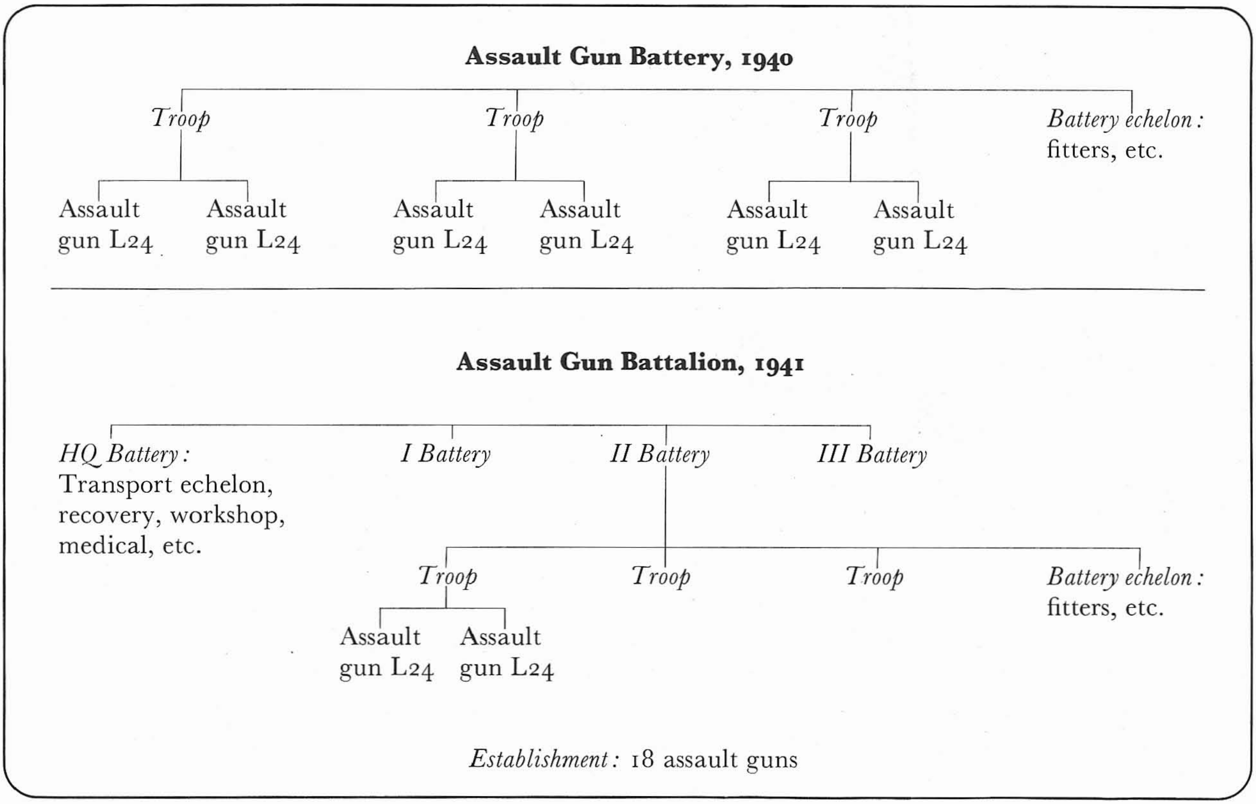
A temporary application of gunfire for specific bombardment in the forward battle zone is



***Sturmtiger*, showing missile derrick, and prominent muzzle counter-weight on the rocket launcher. (RAC Tank Museum)**

**Panzer Leader.*

**See Vanguard 2, *Panzer-Grenadier Division 'Grossdeutschland'*; Vanguard 4, *Fallschirmpanzerdivision 'Hermann Göring'*; and Vanguard 8, *2nd SS Panzer Division 'Das Reich'*.



Assault Gun Battery, 1940

Troop
Troop
Troop
Battery echelon: fitters, etc.
Assault gun L24
Assault gun L24
Assault gun L24
Assault gun L24
Assault gun L24
Assault gun L24

Assault Gun Battalion, 1941

HQ Battery: Transport echelon, recovery, workshop, medical, etc.
I Battery
II Battery
III Battery
Troop
Troop
Troop
Battery echelon: fitters, etc.
Assault gun L24
Assault gun L24

Establishment: 18 assault guns

permissible, provided other artillery units are unable to fulfil this task, and provided it does not interfere with the assault guns' primary mission. In such situations the assault howitzers will undertake the fire task.

Assault guns are unsuitable for employment in static situations. Their only suitable and sensible function is close co-operation during infantry, Panzer-Grenadier or tank operations.

Employment

For operations you will be placed under the command of an infantry or Panzer-Grenadier division, and occasionally a tank division; employment under the command of units smaller than regiment is the exception.

The formation commander must be made aware of the assault gun's characteristics, so that the maximum benefit can be obtained from the combined operation. The concentrated fire and shock effect of the whole brigade working on a narrow front produces the best results.

The tactical unit is the brigade. To parcel out guns in troops or singly impairs the mass fire effect and assists the enemy's defence. Support of the infantry by single troops must, therefore, be limited to exceptional cases, and the troop promptly returned to brigade control at the conclusion of the operation. Employment of single guns in the forward zone should never take place, since assault guns are designed to provide mutual assistance for each other in circumstances of tactical or technical difficulty.

The more surprise the assault guns can achieve, the better will be the result. The approach march and final preparations are best made by night, the noise muffled by loudspeakers or artillery fire. Assault guns will not take part in the preliminary bombardment.

The brigade commander will arrange for replenishment and technical assistance facilities to be available in the forward zone, and assess the correct moment for the guns to be withdrawn to this rally point.

Co-operation with infantry

Infantry must make full and immediate use of the assault guns' fire support. Fire and movement between infantry and guns must be mutually agreed.

The best results are obtained when the infantry and guns adopt a loose formation. As the assault guns will attract most of the enemy's fire, the infantry should not crowd together behind them, as this will result in heavy casualties; instead, the infantry should advance by a series of carefully timed rushes.

Co-operation between assault guns and the infantry's heavy weapons must be agreed beforehand, particularly in cases where the former are at risk from the enemy's anti-tank guns.

In open country, the assault guns will lead the advance; where the country is closer, the infantry will take the lead. [In addition to the difficulties posed by woodland, assault guns were blinded by any tall standing crop; the document makes specific mention *inter alia* of sunflower fields.] In the latter case it is the responsibility of the infantry to warn the guns of any obstacles in their path, such as minefields, bad going and anti-tank positions. Mutual identification of targets can be achieved by means of tracer ammunition, flare pistols, indicative shooting and hand signals. The assault gun and infantry commanders should remain in the closest contact throughout the action.

Co-operation with field artillery

As the fire of field artillery is supplementary to that of assault guns, strict co-ordination of their respective fire plans is essential.

By means of their radios, the assault guns are responsible for ensuring that supporting artillery fire is put to its best use; keeping the field artillery in contact with the spearhead of the attack; and providing early warning of defensive fire tasks that might be required.

The field artillery are responsible for neutralizing the enemy's artillery and fire control posts; preparing the way for the attack and protecting its flanks; and providing protection for the recovery of assault guns which have become casualties.

The co-operation of assault guns with the Artillery Fire Controller is, however, a supplementary task and must not detract from the principal mission of providing direct fire support for the infantry.

Co-operation with Pioneers

Close co-operation between assault guns and pioneers prevents casualties and losses. Under cover of the assault guns' fire the pioneers will create minefield gaps, fill in anti-tank ditches and strengthen damaged bridges. During an attack against prepared positions, each assault gun battery will be allotted pioneers for the duration of the operation.

Assault guns are outstandingly suitable for the support of pioneers in all manner of battle situations.

Co-operation with Luftwaffe

The involvement of the Luftwaffe in the ground battle will benefit the assault guns by causing confusion among the enemy and by raising dust and smoke clouds. In order to advise the support squadrons as to the position of the front line, assault guns will put out orange smoke markers, and by firing smoke or tracer ammunition they can advise the aircraft of suitable targets.

For co-operation with the Luftwaffe the assault gun brigade is equipped with the Air Co-operation Radio Set FU7.

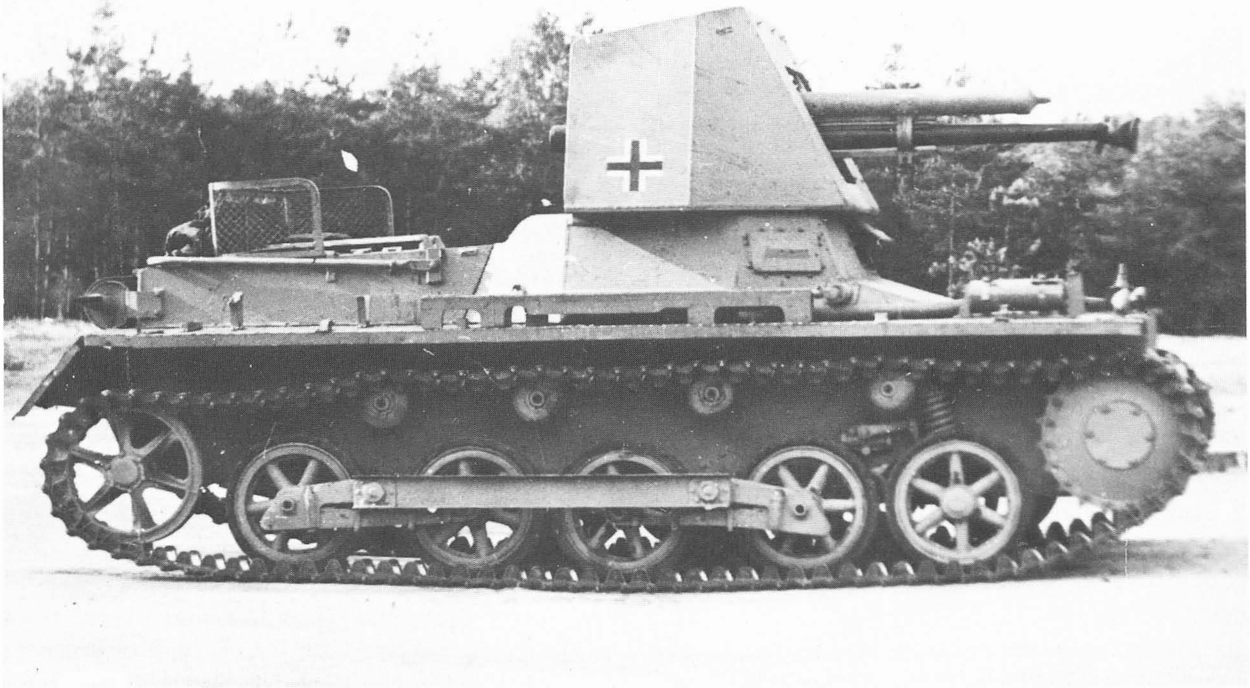
Tasks of Escort Grenadiers

The first duty of the grenadiers is the protection of the assault guns in all phases of the battle. Escort grenadiers are not assault troops; they are neither armed nor able to perform this rôle, having a specialized task to perform.

As well as providing a close escort for the guns, the grenadiers will: indicate targets by tracer fire or hand signals; warn the assault guns of anti-tank positions, minefields and other obstacles; secure the route to the operational start line; and protect the guns in their harbour area.

Once allocated to a particular gun, escort grenadiers will remain with it throughout the action. If they are in danger of falling behind, they will attract the vehicle commander's attention by firing their assault rifles into the ground ahead of the vehicle, and do their utmost to regain contact.

Should the establishment of the Brigade not include an Escort Grenadier Battery, the infantry will be detailed to supply a sufficient number of men to perform the task.



Two views of Germany's first tracked tank destroyer, the *Panzerjäger I*; one shows it in action in the outskirts of Stalingrad in the late summer of 1942, the other shows the structure more clearly. Protection for the crew of the 47mm gun was minimal. (Bundesarchiv: RAC Tank Museum)

Enemy tanks

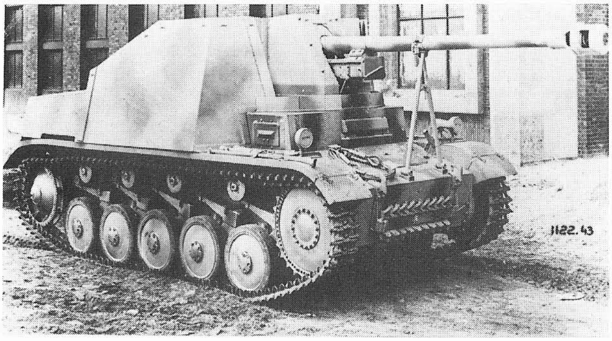
Should assault guns encounter tanks, they are to be engaged. Measures to be taken include the construction of a fire-front and engaging the flanks of the enemy formation.

Where the enemy attack is accompanied by infantry, these will be engaged by the assault howitzers alone, while the remainder of the guns concentrate on the tanks; this will have the effect of separating the enemy infantry from their armour. For this type of action an internal troop organization of one assault howitzer and two assault guns is particularly suitable.

Terrain and weather

The shape of the ground, the nature of its covering and the type of going all influence assault gun operations. Full utilization of terrain increases weapon capability, decreases losses and saves wear on equipment.

In winter a snow depth of 50cm will prevent the full use of assault guns, and special precautions must be taken in view of the effect of extreme cold on their engines. Severe cold will also affect ammunition, so that ricochets and bursting are both likely; the howitzer can maintain its efficiency by employing a double charge. Service with assault guns is arduous and a real danger of freezing to death exists; therefore, measures against the cold require particular attention and dedication.'



The *Marder II* mounted the 75mm Pak 40/2 anti-tank gun on the chassis of the PzKpfw II Ausf. A, B, C and F. (RAC Tank Museum)

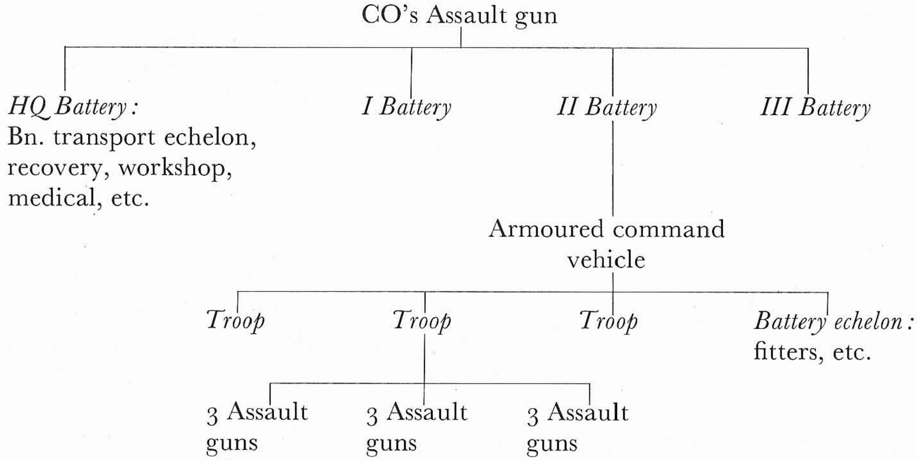
Firing over unfrozen snow largely negated the value of smokeless propellants and gave away a gun's position at once. (Bundesarchiv)

Active Service

No assault gun units were available for service during the 1939 Polish campaign. However, by the summer of 1940 six batteries had been formed, four of which saw service in France (Nos. 640, 659, 660 and 665), one fighting in support of the then-infantry regiment *'Grossdeutschland'*. During the 1941 Balkan campaigns against Yugoslavia and Greece three battalions were employed, and this figure was doubled for the invasion of Russia, Army Groups North, Centre and South each having the support of two battalions. Thereafter, as soon as they became available, further battalions were despatched to the Eastern Front in rapid succession.

The subsequent history of the arm follows the triumphs and tragedies of the war with Russia, but assault gun units also saw active service in Finland, Italy, Normandy and on the Western Front. Their involvement in North Africa was limited to a handful of vehicles despatched to

**Interim Order of Battle,
Assault Gun Battalion, 1942**


CO's Assault gun
HQ Battery:
Bn. transport echelon, recovery, workshop, medical, etc.
I Battery
II Battery
III Battery
Armoured command vehicle
Troop
Troop
Troop
Battery echelon:
fitters, etc.
3 Assault guns
3 Assault guns
3 Assault guns

Establishment: 3 ACVs, 28 assault guns L24, L43, or L48, depending upon availability

Tunisia just before the final collapse; during the desert phase of the campaign there had been little call for assault guns in what was essentially a tank battle.

To record even the major events in the Assault Artillery's dramatic history would require a book many times the length of this, but perhaps by following one unit for a short period the reader will be given some idea of the sort of battles fought by the assault guns.

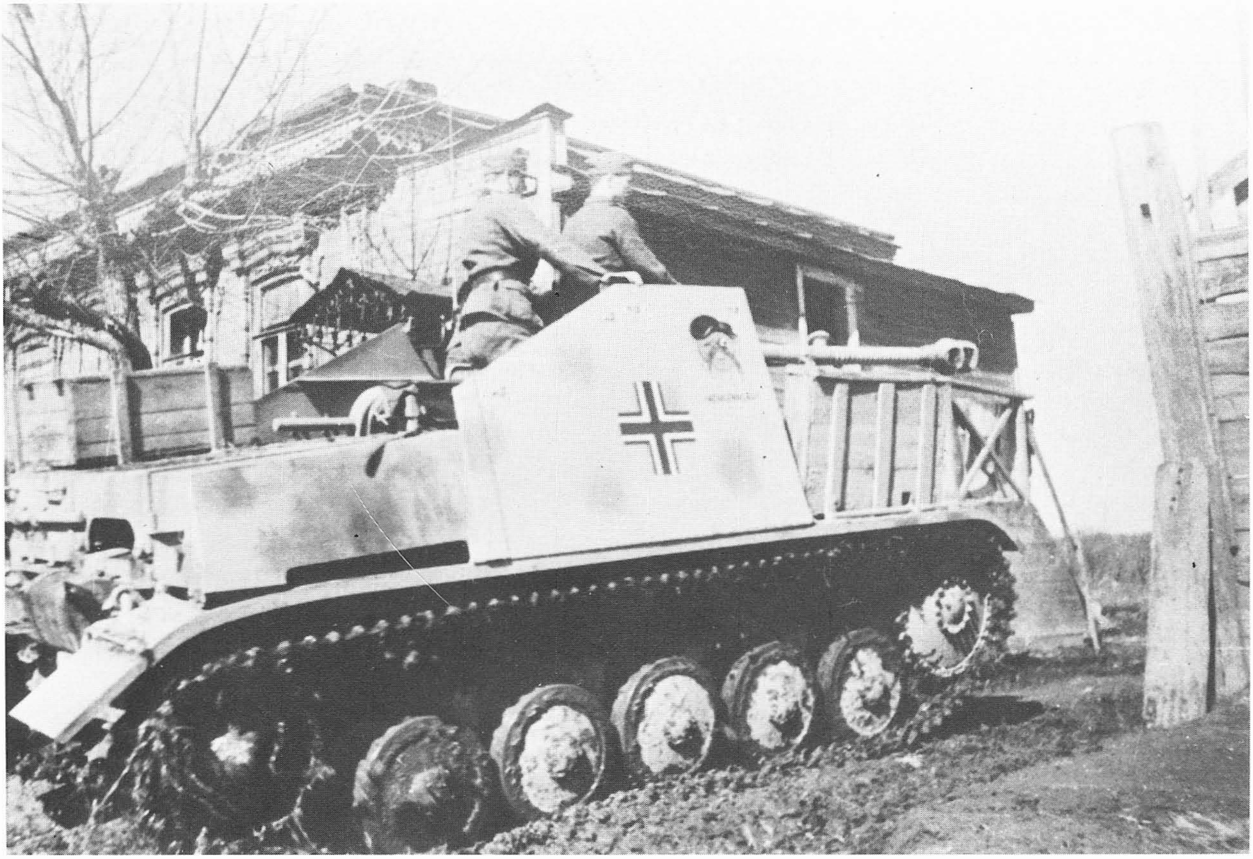
During September 1941, one Corps unit, Sturmgeschütz Battery 667, fought a series of actions in the Leningrad area in support of the infantry of the German I Corps, a Knight's Cross being conferred on the battery commander, Oberleutnant Joachim Lutzow. The following is an extract from his citation:

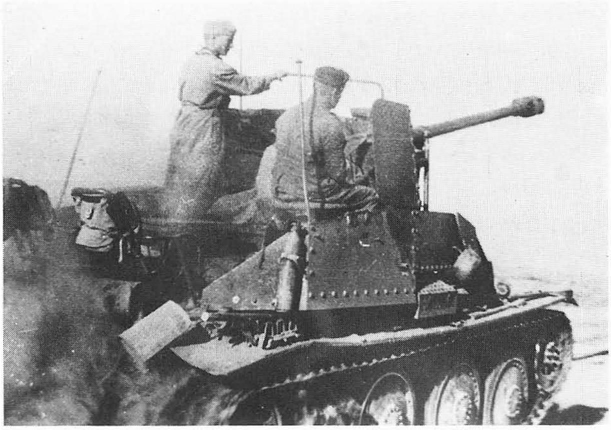
'At the spearhead of the breakthrough wedge was Oblt. Lutzow and his Assault Gun Battery 667. The captures made by the Corps during the period from 12 to 19 September were 6,500 prisoners and 92 guns. 225 modern bunkers were stormed and 301 heavy weapon and machine gun posts destroyed. It was entirely as a result of the resolute actions of Oblt. Lutzow that these results were achieved.' 1GB

The battery was later withdrawn from the front and returned to Jütebog, where it was expanded into a full battalion, retaining its number. It arrived back on the Eastern Front at the beginning of August 1942, and went into action almost at once in the Chleppen bridgehead on the sector of Army Group Centre.

A Russian tank attack along the river bank threatened to isolate the bridgehead and caused some panic among the German infantry. Only the determined efforts of 667 Abteilung's 1st and 3rd Batteries succeeded in halting the enemy, who were present in strength. Having stabilized the situation, the assault guns then mounted a reckless attack on the Russian penetration, accompanied by only twenty infantrymen, and

The much-photographed *Marder II* nicknamed 'Coal Thief' —the German music hall equivalent of the British 'spiv'. There are already more than 20 kill rings round the gun barrel. This vehicle has been identified by one German writer as serving with 29. Inf. Div. (Bundesarchiv)





The captured Russian 76.2mm anti-tank gun was rechambered to take German 75mm rounds, and mounted on the chassis of the obsolete Czech 38t to produce the *Marder III*. In May 1942, 117 of these vehicles were sent to North Africa to counter the menace of the heavily armoured Matilda II. (Bundesarchiv)

so restored the integrity of the bridgehead, destroying nineteen T-34 tanks in the process.

After this the battalion returned to the control of Army Group North and was engaged in a series of defensive actions against heavy Russian tank attacks in the area of Rzhew, north-west of Moscow. During the four days 28–31 August 1942 no less than 83 enemy tanks were destroyed, of which eighteen had fallen victim to Oblt. Klaus Wagner, commander of the 3rd Battery. Wagner had earned his Knight's Cross, but was severely wounded, and Oblt. Baurmann took over his command.

The Russians maintained their pressure, and on 9 September a formation of fifty T-34s nearly overran the 3rd Battery, which had been reduced to only five effective vehicles. All but surrounded, the assault guns fought back against odds of 10 to 1, taking a terrible toll of the enemy tanks and their accompanying infantry. But numbers began to tell in spite of Russian clumsiness, and gun after gun was knocked out until only Baurmann's already damaged vehicle remained. Sensing victory, the Russian infantry surged forward, to have gaps blown in their ranks by Baurmann's high explosive 75mm shells, and to be raked by his roof machine gun. The attack crumpled, gave ground, and finally collapsed, leaving behind the carcasses of 33 blazing tanks. The 3rd Battery had survived, but only just, and were withdrawn into reserve for a rest and refit. Baurmann received the German Cross in Gold. (On 3 May 1945, as a major commanding 300 (Field) Assault Gun Brigade, Baurmann also won the Knight's Cross.)

But 3rd Battery's rest period was to be of short duration, for on 15 September the Russians attacked again, and this time came perilously close to breaking through the forward zone. Without waiting for the rest of the battery, Wachtmeister (Sergeant) Hugo Primozic set off with his troop for the hard-pressed infantry holding line. The approach march of the three guns was screened by low hillocks clothed in underbrush, and was not detected. Halting his troop inside the cover, Primozic dismounted and went forward on foot to the infantry position to verify the situation. On one flank a road ran along a causeway, and on the other was a river bank. The ground between was covered with the wrecks of previous Russian tank attacks, and pitted with the shell craters of the enemy's artillery bombardment. In the distance was a low crest, and across this was coming the first wave of eight T-34s, firing on the move.

Sprinting back to his vehicle, Primozic moved his troop to a good flanking fire position on the edge of the underbrush. His vehicle was spotted by one of the leading tanks in the same instant that his own gunner was adjusting his final lay. The Russian got in the first shot, which smashed against the assault gun's side armour. A split second later the 75mm barked and the T-34 disintegrated in a thunderous explosion. Another T-34 was destroyed while its gunner was still traversing towards the target.

Primozic's two other guns were also up alongside, banging away at the Russian armour, now 800 yards distant, and scoring kills. Further tank waves were rolling over the distant crest, and behind them came the brown, cheering mass of the enemy infantry, onto whom the assault guns directed high explosive and machine gun fire in an attempt to separate them from their armour.

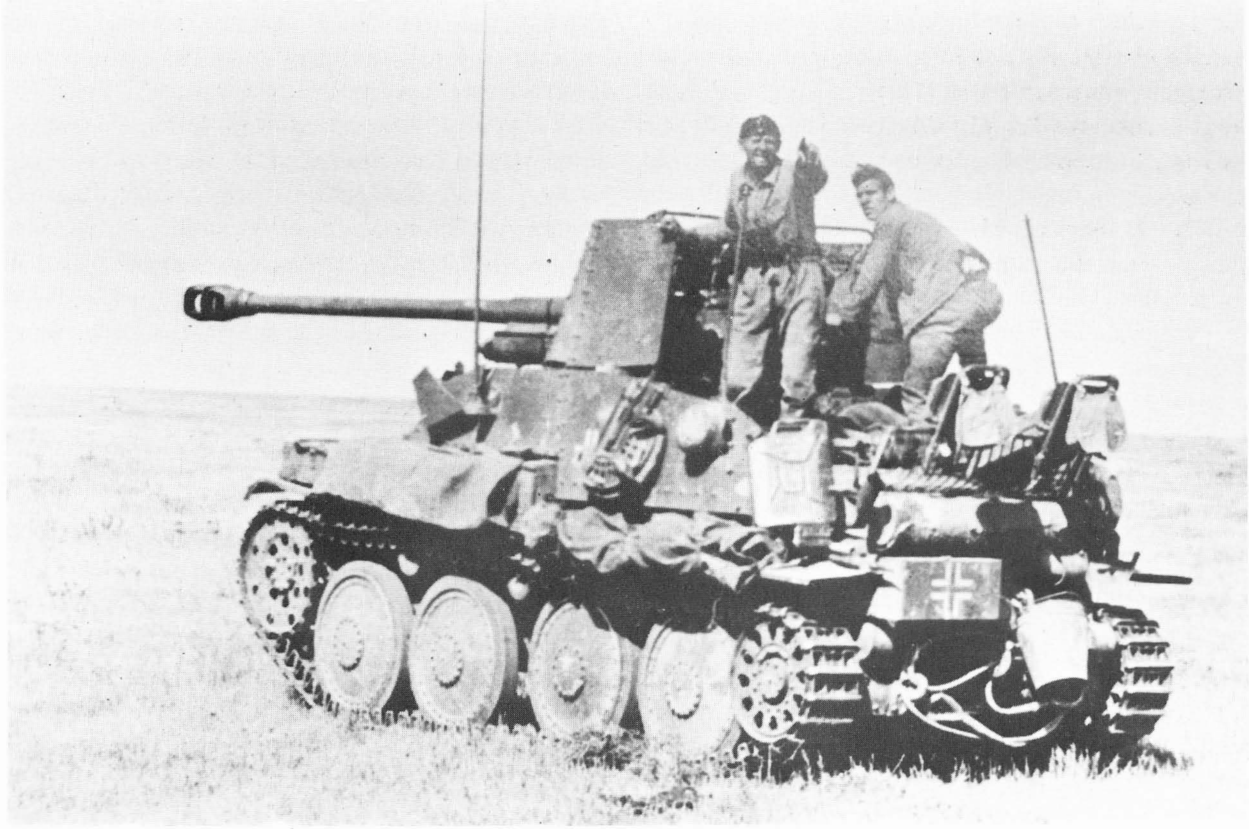
The sharp crack of high velocity armour-piercing shot warned Primozic that his troop was now the prime target of the Russian tanks, and he reversed slowly back into cover before advancing again to a new fire position further to the left, while the T-34s continued to waste their energy on the now-vacant position.

The range was now down to 300 yards. A KV-1 scored a hit on Primozic's front armour, the high explosive round bursting like a thunderclap, but causing no damage. The German gunner took careful aim at his opponent's turret, only to see his own round fly off the 43-ton monster; he fired again, and this time the KV lurched to a standstill with smoke belching from its hatches. Next, two T-34s to the flank were engaged; after the first had had its turret blown out of its seating, the second turned tail and headed for the crest followed by the rest of the Russian armour. A small covering force in a cornfield 400 yards to the front was quickly eliminated, after one of its rounds had started a minor fire in Primozic's fighting compartment.

Fighting in isolation, the three assault guns had prevented a breakthrough at a critical point and destroyed a total of 24 enemy tanks. Primozic became the first NCO in the German Army to be awarded the Knight's Cross, and in an equally gallant action on 28 January 1943 he gained the decoration's coveted Oakleaves.

This engagement illustrates the ease with which the low-slung assault guns could be concealed in excellent fire positions, and for this reason Russian tank crews detested them. Imitation being the sincerest form of flattery, the Red Army set about building its own crude copies, and also used captured vehicles, replacing the 75mm gun with one of their own 76.2mm models; but it could not duplicate the basic skills and battlecraft of the German assault artillerymen themselves.

By the end of 1943 it was estimated that assault guns alone had destroyed 13,000 enemy tanks; by the following spring the figure had risen to 20,000. No figures are available for the last year of the war, but on mathematical progression alone the grand total of tanks destroyed cannot be less than 30,000. (During fifteen months on the Rzhew sector 667 Assault Gun Battalion's three batteries



***Marder III* photographed on the open steppe, autumn 1942. Apart from the very limited space available for stowing the crew's kit and the various 'extras' always acquired on campaign, the vehicle was seriously handicapped in being able to accommodate only 30 rounds of main armament ammunition. This crew appear to wear the reed-green vehicle denims, with a black Panzer sidecap with pink *soutache*. (Bundesarchiv)**

alone had destroyed the huge total of 1,000 Russian tanks.)

Because of these achievements the assault gun holds an honoured place in German military history; and it was no surprise when one of the first vehicles built for the reconstituted Federal German Army happened to be a virtual copy of the design which had served so well throughout the Second World War.

Tank Destroyers

The German tank destroyer was a weapon system which had to be developed at great speed and in circumstances of dire necessity. Prior to the outbreak of war, Guderian had forecast the need for self-propelled anti-tank artillery to serve with the Panzer divisions; but very little was done, and beyond a few 47mm L43 guns fitted to PzKpfw I light tank chassis, the German Army began 1941 without any automotive anti-tank equipment, an omission for which it would pay dearly.

In North Africa the British Matilda infantry tank's 80mm armour had proved invulnerable to anything that the Italians could fire at it, and during an engagement at Halfaya Pass on 27 May 1941 a single weak Matilda squadron had inflicted such a shameful rebuff on the 160 tanks of the German 5th Light Division that Rommel found it necessary to restore discipline by dismissing or court-martialling several senior officers.

In Russia there were more unpleasant surprises in store for the Panzer divisions. The Klimenti Voroshilov (KV) heavy tank and the new T-34 medium were both armed with a potent 76.2mm gun which out-ranged the German Panzers; moreover, both Russian designs were extremely well armoured, the former with 78mm arranged conventionally, the latter with its 45mm glacis plate angled back at 60 degrees, giving in effect 90mm protection.

In the ensuing battles the assault guns, with their own thick frontal armour, fared rather better than the Panzers; but until larger weapons could be fitted to both classes of fighting vehicle, there was a desperate need for fully mobile anti-tank guns with sufficient punch to penetrate the armour of the Matildas and the Russian tanks. At this stage the towed anti-tank equipment was either too slow to maintain pace with the Panzer divisions or was not powerful enough for the task required, and the Luftwaffe's highly effective dual-purpose 88mm gun was not only in short supply but was also extremely cumbersome.

However, quantity production of 75mm anti-tank guns was well under way, and fortunately a substantial number of obsolete German, Czech and French tank chassis became available about the same time, a combination of the two providing a logical solution to the problem.

Panzerjäger Equipments

The first generation of tank destroyers all followed the same basic pattern, and consisted of a gun fitted atop a tank chassis, the fighting compartment being protected by a fixed, open-topped superstructure of armour plate, which provided only a limited traverse. They represented a temporary solution pending the appearance of purpose-built tank destroyers, but were extremely effective.

The **Panzerjäger I** has already been mentioned, and was based on the chassis of the PzKpfw I Ausf. B; the original turret had been removed and replaced by a high shield containing a 47mm L43 Czech gun. The vehicle weighed about eight tons and had a speed of 24mph, serving with the integral anti-tank units of infantry divisions during 1940 and 1941.

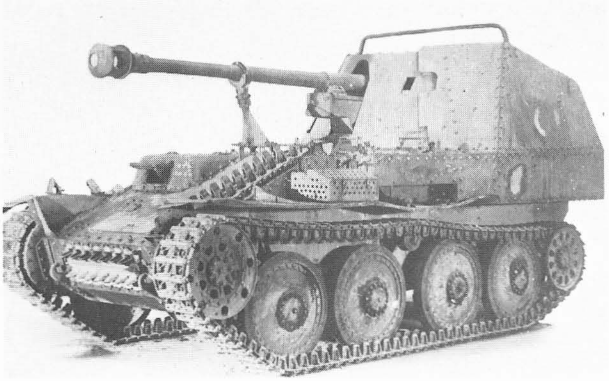
The **Marder II** ('Marten') entered service in 1942 and was based on the chassis of PzKpfw II Ausf. A, B, C and F. It mounted the new 75mm L46 Pak 40/2 anti-tank gun which fired a 12.6lb projectile at a muzzle velocity of 1,800ft/sec, and carried a crew of four. The equipment weighed eleven tons and had a top speed of 25mph. A total of 531 of these conversions were made during 1942 and 1943, and saw service in the anti-tank units of infantry and Panzer divisions.

The chassis of the PzKpfw II Ausf. D and E were used as the basis for another equipment also known, confusingly, as **Marder II**, although in appearance the two vehicles were quite different; the Ausf. D and E versions had a high, box-like superstructure further aft and were equipped with a captured Russian Model 36 76.2mm gun re-chambered to take the German 75mm round. This weapon had a muzzle velocity of 2,430ft/sec, later increased to 3,250ft/sec with improved ammunition, and proved capable of defeating Russian armour. One hundred and eighty-five of these vehicles were built concurrently with their namesakes, and were similarly employed. Occasionally guns were transposed between the respective chassis, according to availability; sometimes muzzle brakes were fitted, sometimes not.

The Russian gun was also used on the early models of the **Marder III**, which was based on the chassis of the Czech 38t tank, and which also employed a high box superstructure for the gun mounting. In this form a total of 344 vehicles were built, of which 117 were sent to North Africa in May 1942 to combat the Matilda menace. They were so successful that the British thought, prematurely, that they were dealing with a mechanized version of the dreaded '88'.

Later models of the Marder III mounted the German 75mm L46 Pak 40/3 gun, which gave a similar performance to the Russian weapon. This appeared in two forms, the first having the fighting compartment well forward, while on the second the engine had been moved amidships and the fighting compartment installed at the rear. Most of the 1,577 75mm Marder IIIs built were employed in Russia in the same capacity as the Marder IIs. They carried a crew of four, weighed ten and a half tons and had a maximum speed of 26mph.

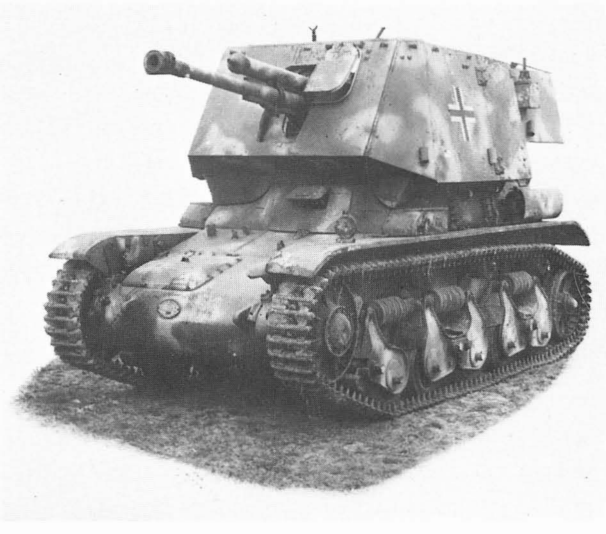
A number of captured French chassis were converted for tank destroyer use in 1943. Several were fitted with obsolete 37mm and 47mm anti-tank guns, but the most important result was obtained by mounting the German 75mm Pak 40/1 gun on the Lorraine tracked carrier, the combined equipment being known as **Marder I**.* The 75mm gun was also fitted to the Hotchkiss and FCM tank chassis in small numbers. In general the French conversions were regarded as second-line equipment and were employed mainly in occupied countries, where they served in the training or counter-invasion rôles.



Late-model *Marder IIIs* were armed with the German 75mm Pak 40/3, with the engine relocated 'amidships' and the fighting compartment at the rear. Note the small rectangular hole cut in the armour right of the gun, for the gunner's telescope; and the travelling crutch for the gun. To free the armament the gunner simply elevated the barrel, and the crutch fell away. (RAC Tank Museum)

Last and largest of the interim tank destroyers was the **Nashorn** ('Rhinoceros'), which was introduced in 1943. This vehicle solved the difficulty of providing mobility for the 88mm anti-tank gun on the Eastern Front, the L71 Pak 43/1 model being installed in a fighting compartment which occupied most of the front-engined PzKpfw IV chassis, which incorporated the transmission and final drive of the PzKpfw III. The Nashorn was issued to 30-strong heavy tank destroyer battalions, which were committed under Army control as the situation required. While combining mobility with heavy firepower, they

A number of obsolete French chassis were converted to the tank destroyer rôle. This vehicle mounts a 47mm anti-tank gun on the chassis of an R.35 tank; few were built, and those used mainly for training. (RAC Tank Museum)



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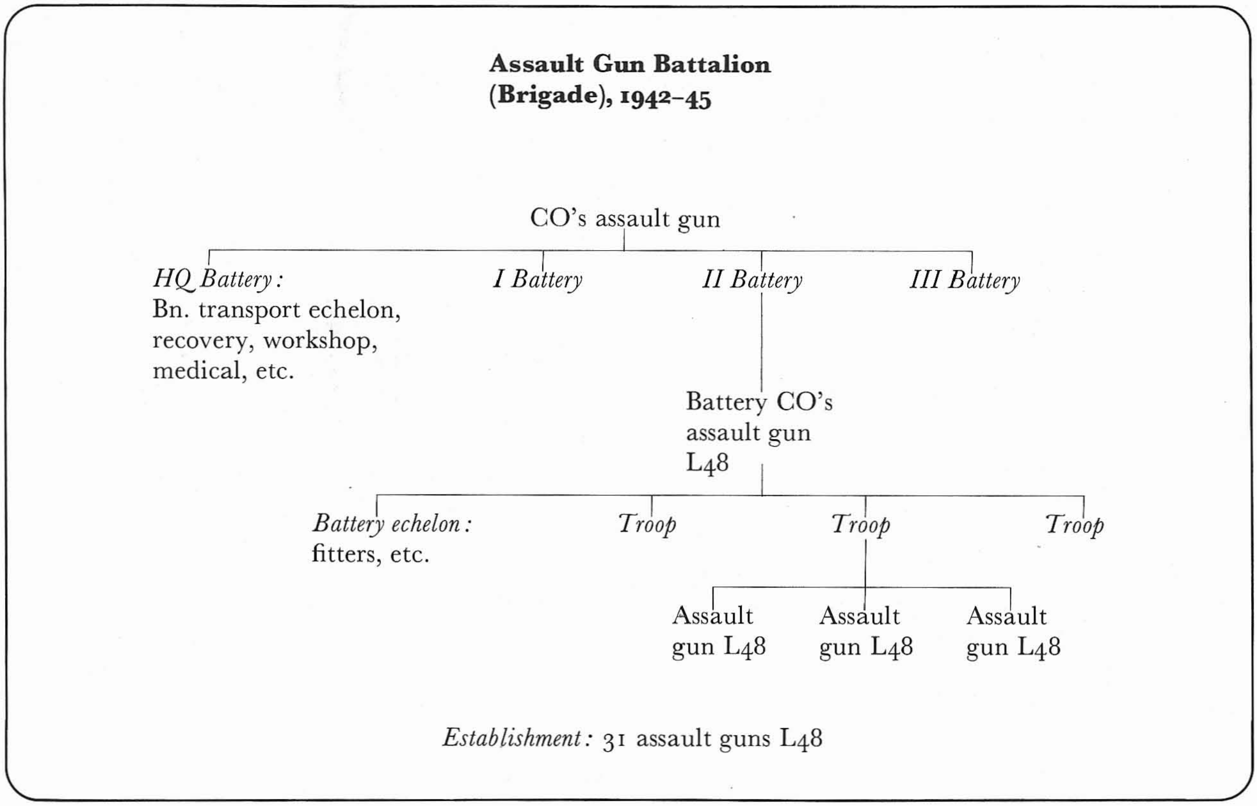
*This brought the number of 'Marders' in service to six, all of different appearance, leaving contemporary recognition experts confounded; in some measure this confusion persists to this day, and both guns and chassis must be specified if the name is to be used with any clarity.



Assault Gun Battalion (Brigade), 1942–45

Establishment: 31 assault guns L48

were poorly protected for a front-line weapon, and their great height (9ft 7½in) was a disadvantage when it came to the selection of concealed fire positions. They weighed twenty-four tons, had a crew of five, and could travel at 26mph. Their name had been conferred by Hitler himself, who apparently considered that the original title of 'Hornet' lacked ferocity.

Subsequent equipments may be grouped as 'second generation' tank destroyers:

The 88mm Pak 43/2 was used by the first fully enclosed tank destroyer, the **Elefant**, sometimes also referred to as the **Tiger (P)** and sometimes as **Ferdinand**, after its designer, Dr Ferdinand Porsche. The chassis was, in fact, that of the unsuccessful Porsche design for the Tiger tank, and the layout consisted of a forward compartment for the driver and radio operator, the engine compartment amidships, and an enclosed fighting compartment at the rear. The frontal armour was 200mm thick and the vehicle weighed 67 tons, being powered by two Maybach 320hp engines, which produced a maximum speed of 12mph.

Of the 90 produced, 76 entered service in July 1943 with two 38-strong heavy tank destroyer battalions, numbered 653 and 654, at the battle of Kursk. Here they were employed in a maverick rôle, that of breakthrough tanks, for which they had not been intended. While they found no difficulty in smashing the opposing armour, their supporting infantry were soon left behind. Having no close-defence machine gun and being all but blind into the bargain, they quickly fell prey to Russian tank-hunting teams which surrounded them and closed in with flamethrowers, Molotov cocktails and explosive devices. Needless to say, both battalions suffered severely.

Those Elefants which survived Kursk were fitted with a hull machine gun and sent to Italy. Their great weight and height and low speed meant that they lacked the mobility of a true tank destroyer, but they performed very well in the semi-static conditions of mountain warfare, their thick frontal armour proving quite impervious to Allied anti-tank guns.

The **Jagdpanzer IV** was, as its name implies, based on the chassis of the PzKpfw IV, but was also commonly known as 'Guderian's Duck'. Its layout followed that of the conventional assault gun, with the fighting compartment forward.

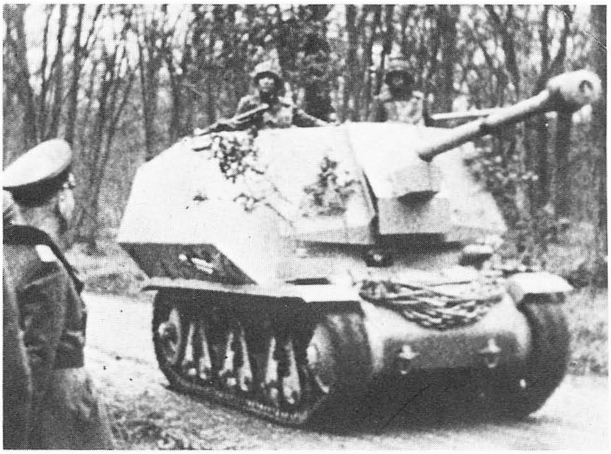
The superstructure consisted of well-angled armour plate, extended to the vehicle's rear, overall height being only 6ft 1in. The first gun to be fitted was the 75mm L48 Pak 39 with muzzle brake, later replaced by the more powerful 75mm L70 KwK 42, both weapons entering the vehicle via a 'Pig's Head' mantlet, to the right of which a conical hatch concealed a machine gun. An interim model with a higher superstructure also mounted the 75mm L70, which had a muzzle velocity of 3,400ft/sec.

Like the assault gun, the Jagdpanzer IV had a crew of four, and its front armour was 80mm thick. It weighed 24 tons and had a speed of 24mph. Side skirts were often worn, and a coating of *Zimmerit* applied. It began entering service towards the end of 1943, gradually replacing the Marders in the tank destroyer battalions of the Panzer divisions. Although an efficient design, only 1,531 vehicles of this type had been constructed by the end of the war.

At the conference attended by Guderian following his appointment as Inspector General of Armoured Troops, he had stressed the need for a light assault gun with which to re-arm the infantry divisions' tank destroyer element. This appeared in 1944 under the title of **Hetzer**. (This is sometimes translated as 'Baiter'; however, the term 'Agitator' or 'Troublemaker' is more accurate.)

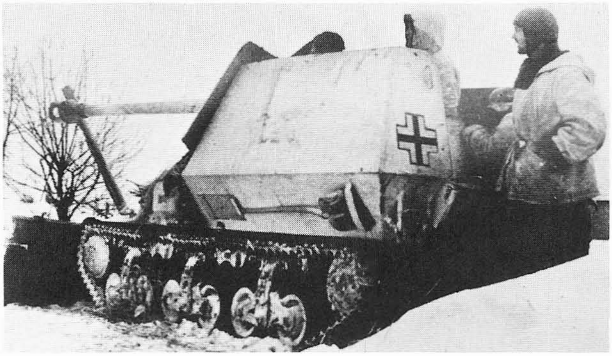
The Hetzer's angled superstructure occupied the whole of the 38t chassis on which it was mounted, the vehicle being armed with the 75mm L48 Pak 39 offset to the right of the fighting compartment, on the roof of which was a machine gun that could be operated from inside the vehicle. The Hetzer was some ten inches taller than the Jagdpanzer IV, but weighed eight tons less and was marginally faster. Its frontal armour was 60mm thick.

While much admired for its combination of hitting power and fine lines, the Hetzer was considered to be something of a pain in the neck by its crews. The driver, being located at the left front of the vehicle, suffered least from the cramped internal layout, but was badly placed if it came to leaving the vehicle in a hurry. Behind him sat the gunner, with the loader bringing up the rear, on the left of a gun designed to be loaded from the right and out of easy reach of his ammunition racks. The commander, seated at the right rear of the fighting compartment, was isolated from the others, and his optical aids were limited to periscopic binoculars which had to be used through an open hatch. Another effect of offsetting the gun to the right was an imbalance of traverse, so that while 11° were obtainable to the right, the juxtaposition of breech and side armour permitted only 5° to the left. In mitigation, it must be mentioned that offsetting was the only way in which the gun, four men and 41 large rounds of ammunition could be jammed into the available space. In spite of its unpopularity the Hetzer performed well, and continued to serve with the Swiss Army after the war.



A 75mm tank destroyer based on the Hotchkiss H.39 tank drives past the unmistakable figure of Rommel, shortly before D-Day. (RAC Tank Museum)

The most successful French conversion was that of the Lorraine tracked carrier, which was also armed with a 75mm gun and named *Marder I*. An immediate advantage which it enjoyed over such 'jury-rigs' as the Hotchkiss in the photo above was its low height. A dangerously exaggerated profile was a penalty often paid for bolting together unrelated components on a basis of availability. (Bundesarchiv)



The year 1944 also saw the introduction of the 45-ton **Jagdpanther**, armed with an 88mm L71 Pak 43/3 gun mounted in a well-sloped superstructure on a Panther tank chassis. Almost everything about the vehicle was right for a big-gun tank destroyer. The 80mm front armour was angled back to provide the equivalent of 160mm; the gun could penetrate every British, American and Russian tank in service; it stowed an adequate 60 rounds of ammunition; its weight was not excessive; its speed of 28mph was an asset; and the glacis contained a machine gun for local defence. Only its height of 8ft 11in, and the inevitable limited traverse, were against it. This efficient and beautifully proportioned gun had a crew of five, and served with the heavy tank destroyer battalions, replacing the vulnerable Nashorn. It had been hoped that 150 of these powerful vehicles could be built each month, but bombing and material shortages reduced the total eventual production run to three hundred and eighty-two.

Last in the line was the unwieldy **Jagdtiger**, which, although the most heavily armed AFV of the war, is best seen as an unnecessary waste of resources. Employing the complicated Tiger B tank chassis, it carried a 128mm L55 Pak 80 gun, protected by 250mm front, 80mm side and 40mm roof armour. The result stood at 9ft 3in high and weighed over seventy tons. While its speed of 23mph was most respectable for such a large vehicle, the electro-mechanical transmission was subject to failure, and attempts to tow 'like with like' merely resulted in a second breakdown.

Thirty-eight rounds of main armament ammunition could be stowed, the heavy rounds being split for ease of handling by the loader, the vehicle's rate of fire thus being slower than that of tank destroyers using fixed ammunition. A machine gun was housed in the glacis plate. Only a few of these monsters were constructed, serving with the heavy tank destroyer battalions and in support of SS Panzer formations.

Guderian's decision that the assault gun and the tank destroyer would gradually merge their rôles was implemented throughout the introduction of this second generation of tank destroyers, a large proportion of the crews being drawn from the Assault Artillery.

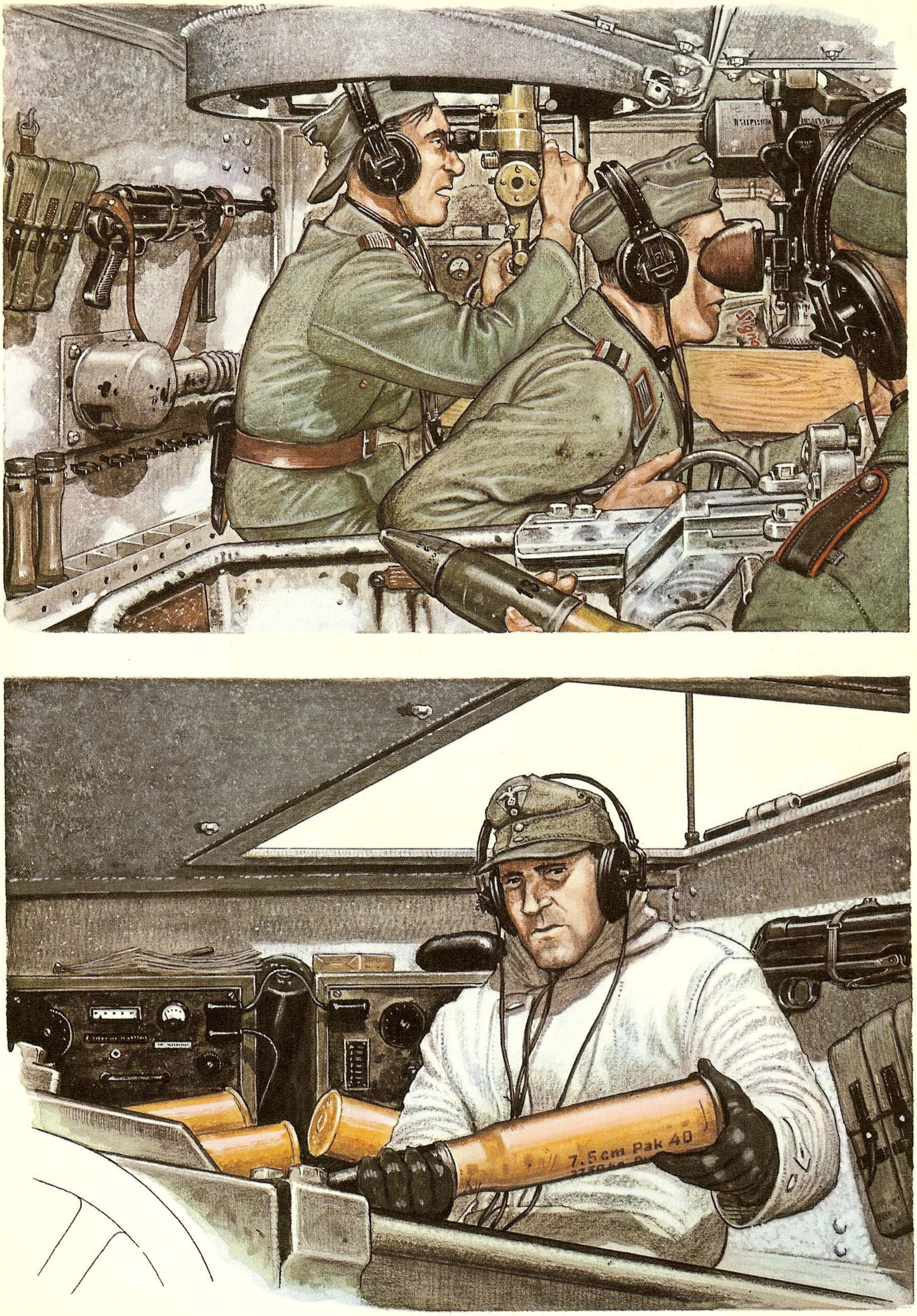
Tank Destroyer Tactics

In spite of their aggressive title, it was not the function of tank destroyers to go out looking for tanks or to hunt them down in open combat. The tank destroyer was essentially a defensive concept, designed to destroy enemy armour by massed direct gunfire from carefully selected positions. These positions preferably lay on the flanks of the enemy's axis of advance or of any penetration he had made; ideally, they would offer cover from view and be located behind a tank obstacle, such as a river, marsh or minefield. The skill of the tank destroyer commander lay in his choosing several such positions *before* they were required, and then getting his guns into them in sufficient time. Concentration was the essence of good tank destroyer tactics, as it was in the employment of assault guns; dispersion into small units and single guns was bad practice.

Tank destroyer units serving with infantry formations often remained on a captured objective until it had been consolidated against counter-attack, and then moved back into reserve. If the infantry were attacked, the tank destroyers would be committed where the danger from enemy armour was greatest, adding their fire to that of the emplaced anti-tank guns. During a withdrawal, their mobility made them an essential part of the rearguard, enabling them to retire through a succession of pre-selected defensive positions into the new front line.

When working with Panzer divisions, the tank destroyers would form a firm fire base during the advance, as well as covering the flanks of the attack. If the tanks were successful, the tank destroyers would move up and form a fresh fire base for the next phase of the attack. If the tanks were not successful, or wished to 'write down' the enemy armour by a feigned retreat, they would retire through the tank destroyers' gun line, so leading their opponents into a fire trap. There were numerous instances of this both in North Africa and in Russia, British and Russian armoured formations paying dearly to learn the lesson that direct pursuit of an apparently beaten foe was not always a sound idea.

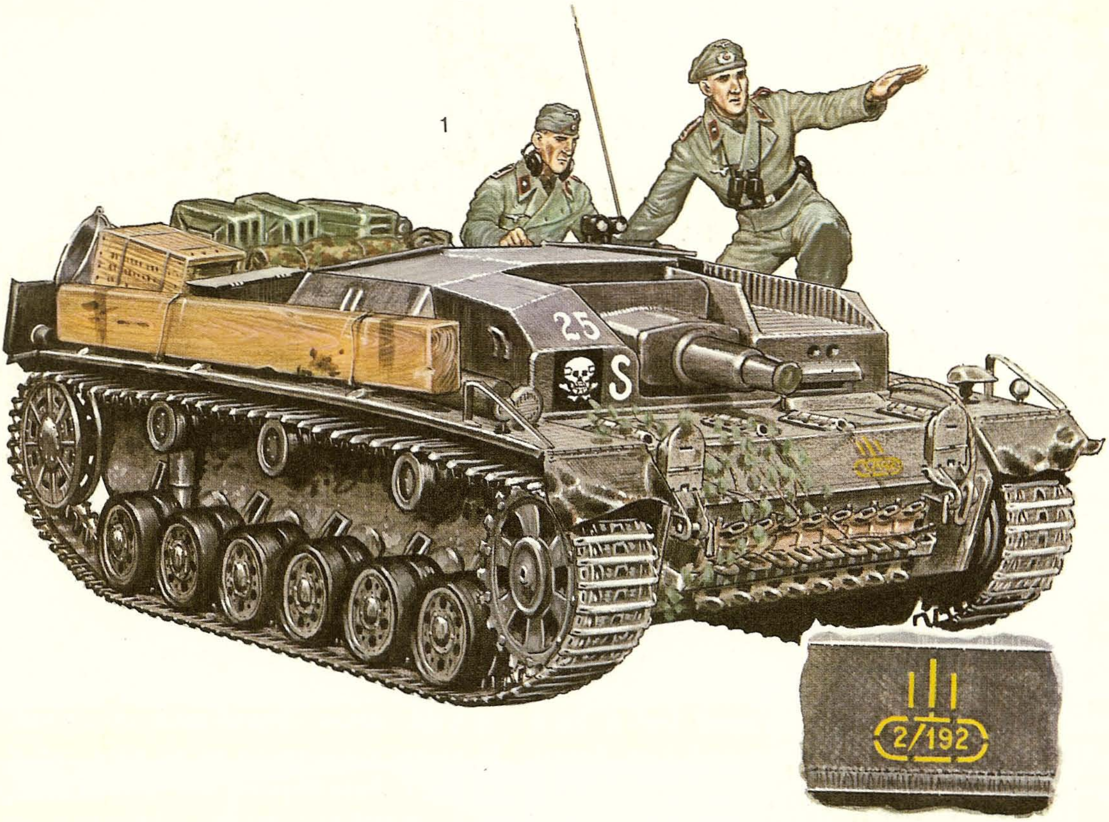
By virtue of their construction, tank destroyers



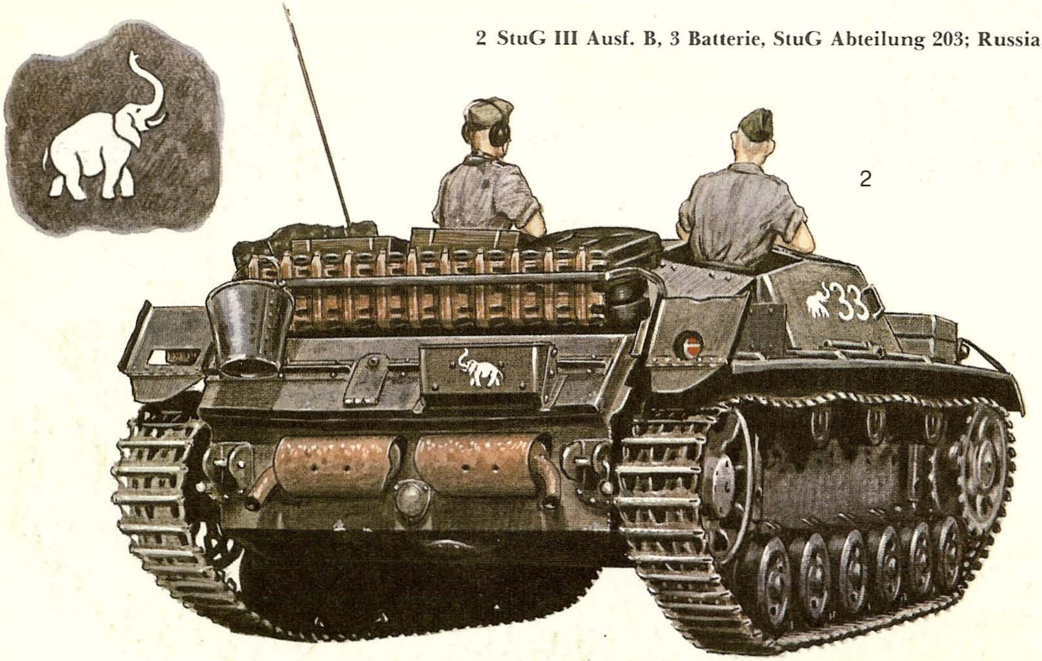
Fighting compartment interior, StuG III Ausf.G; (top) left, and (bottom) right hand sides

A

1 StuG III Ausf.B, 2 Batterie, StuG Abteilung 192; Russia, August 1941



2 StuG III Ausf. B, 3 Batterie, StuG Abteilung 203; Russia, July 1941



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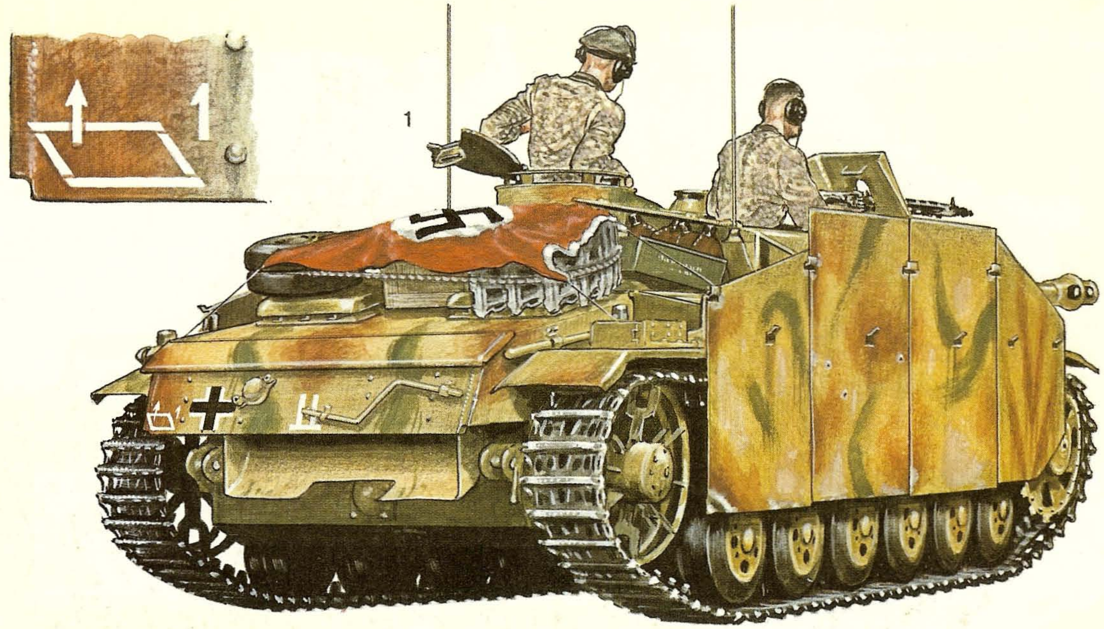
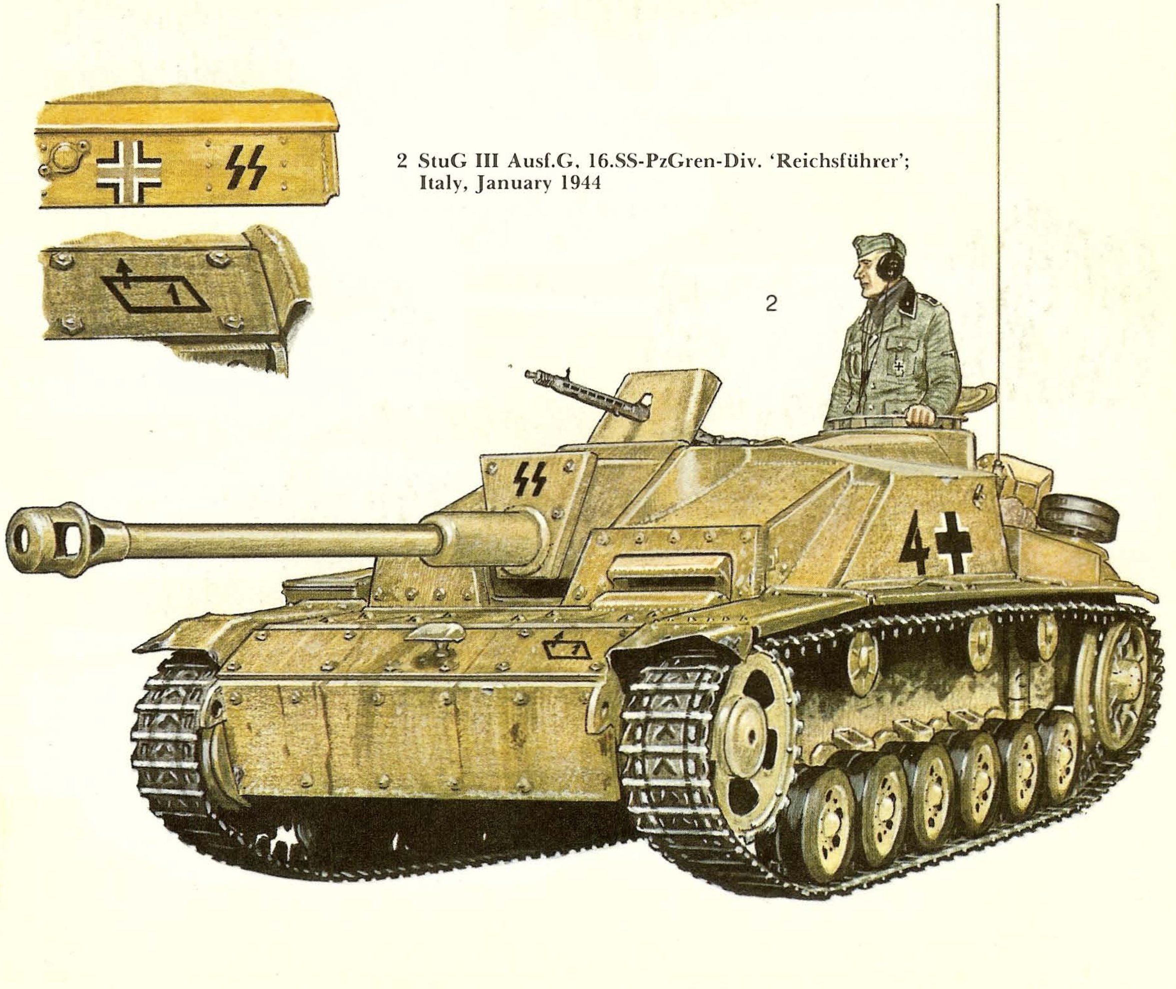


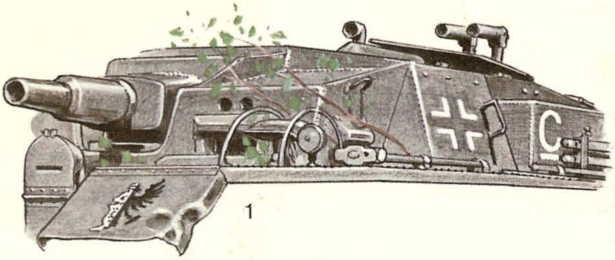
1 StuG III Ausf.G, 2.SS-Pz-Div. 'Das Reich'; Russia, July 1943

2 StuG III Ausf.G, 16.SS-PzGren-Div. 'Reichsführer'; Italy, January 1944



C

StuG III insignia - see plates commentary at end of text for key



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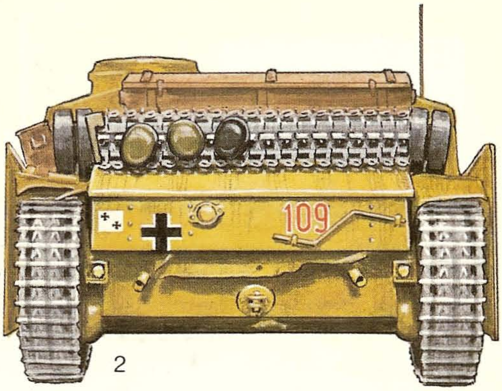

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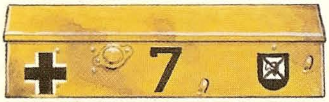

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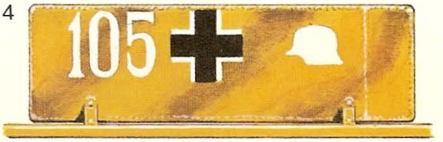

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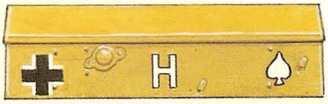

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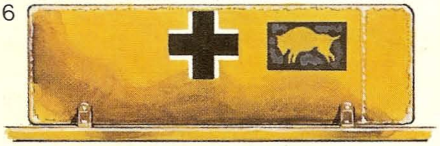

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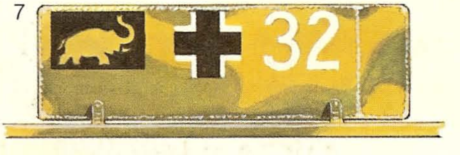

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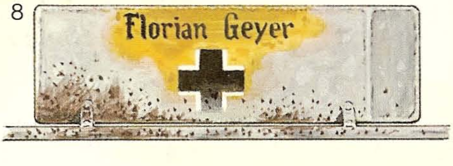
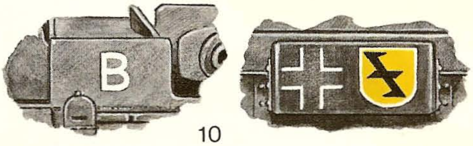

Florian Geyer



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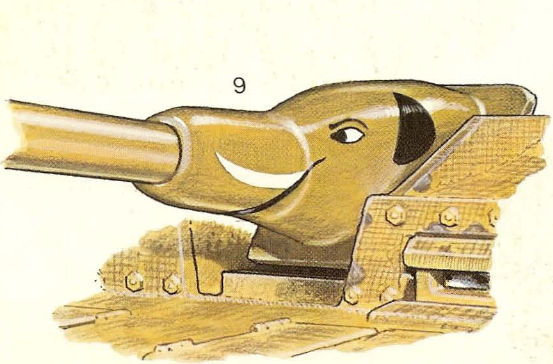

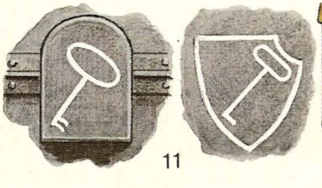

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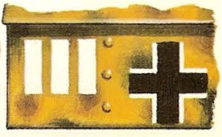

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D

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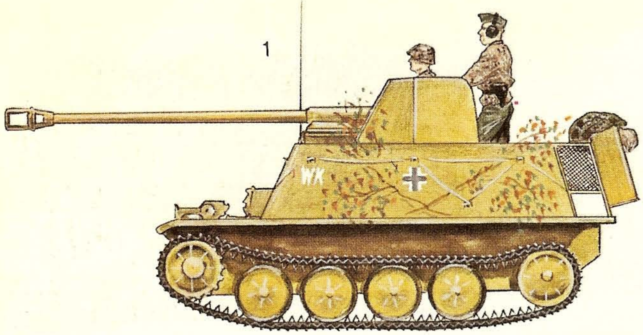
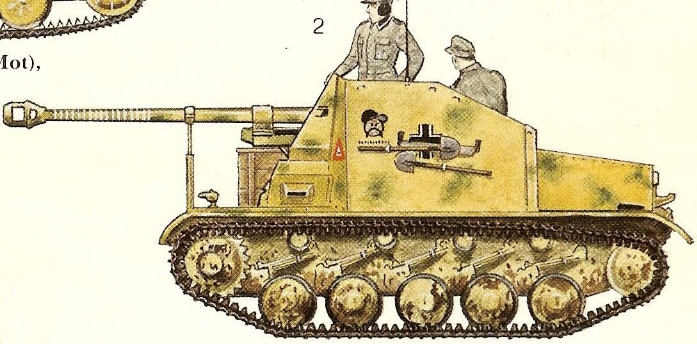


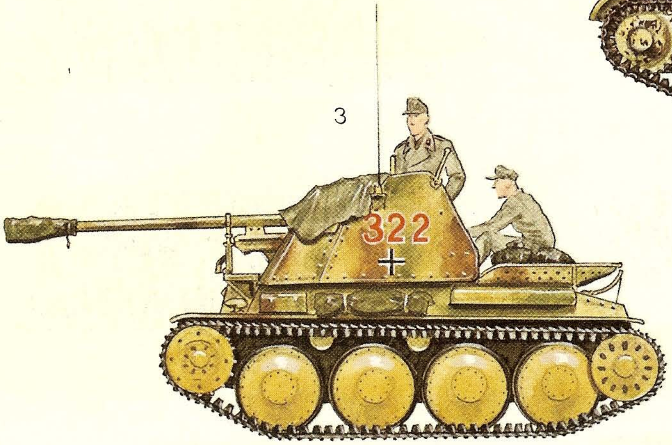
1 SdKfz Marder II, 7.62cm Pak(r); 5.SS-PzGren-Div. 'Wiking', Russia, autumn 1943

2



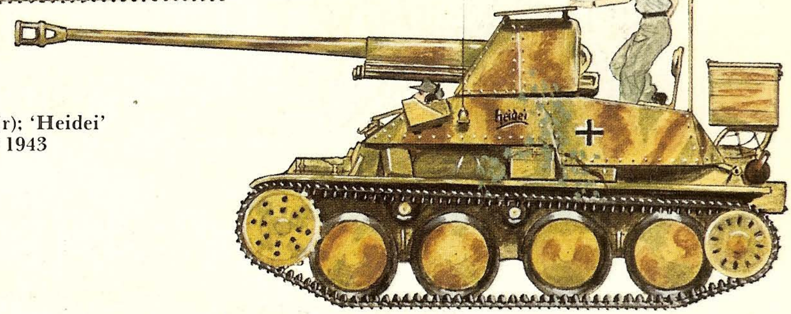
2 SdKfz 131 Marder, 7.5cm Pak 40/2; 29.Inf.Div.(Mot), central Russia, 1942/3

3



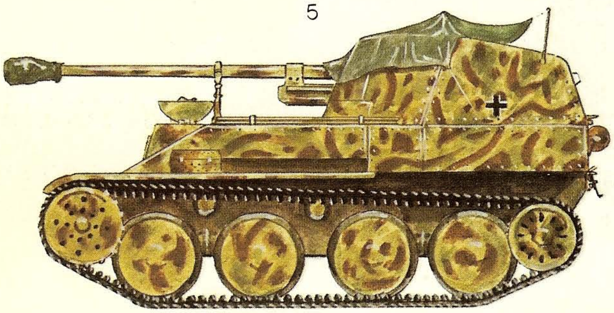
3 SdKfz 138 Marder III, 7.5cm Pak 40/3; unidentified Army Panzerjäger unit, Russia, summer 1943

4

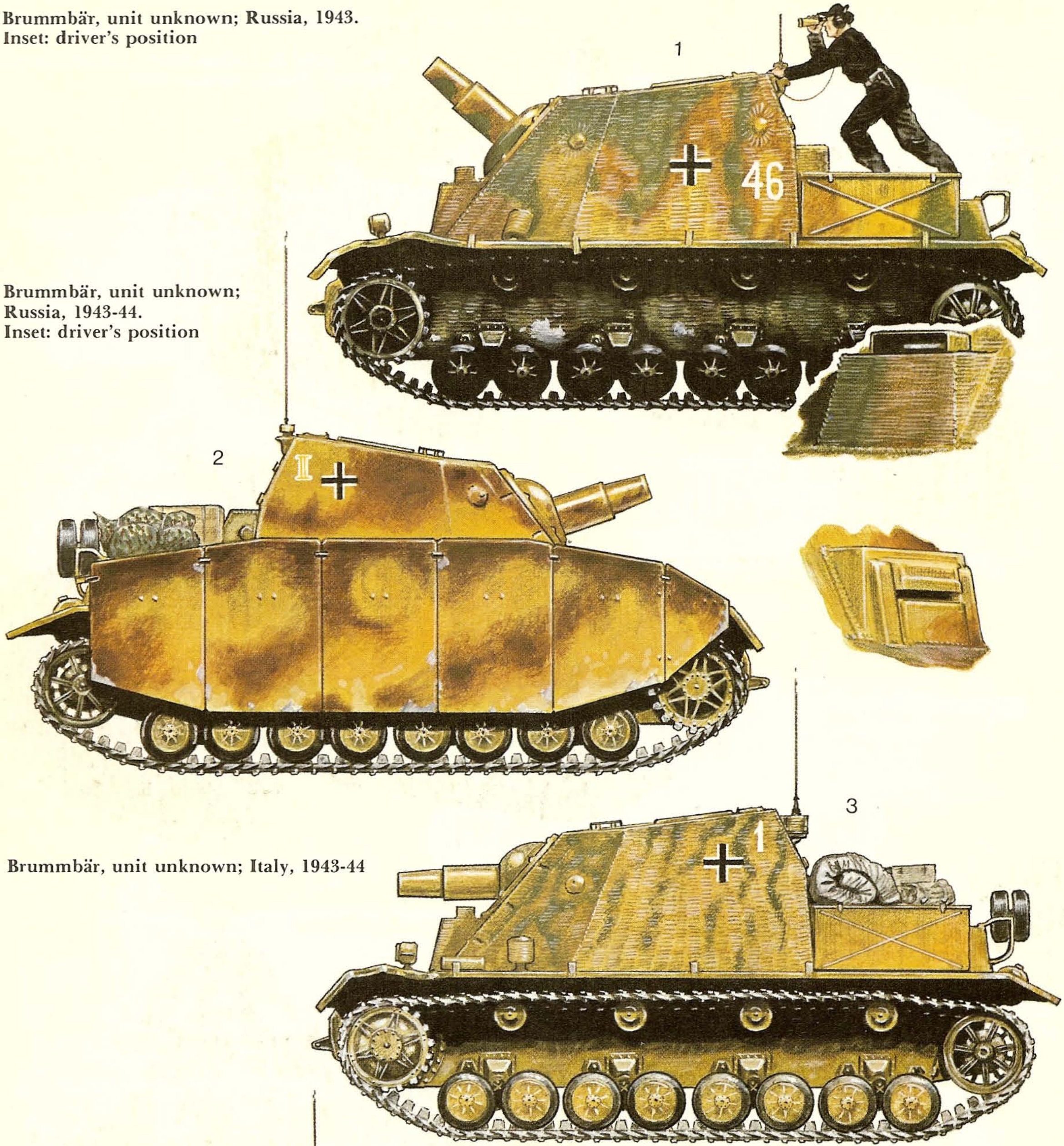


4 SdKfz 139 Marder III, 7.62cm Pak 36(r); 'Heidei' of unidentified unit, Russia, summer 1943

5



5 SdKfz 138 Marder, 7.5cm Pak 40/3 in rear housing; unidentified unit, Russia, autumn 1943



1 Brummbär, unit unknown; Russia, 1943.
Inset: driver's position

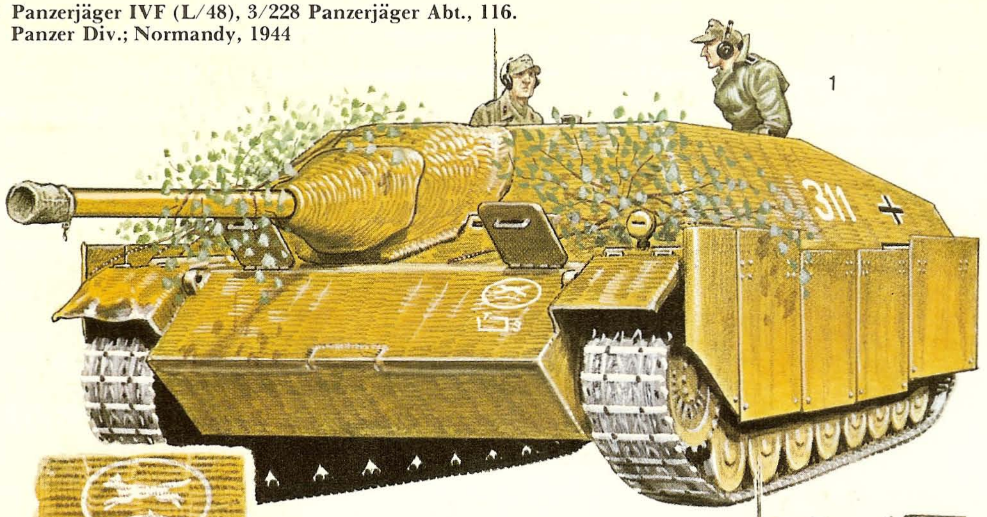
2 Brummbär, unit unknown; Russia, 1943-44.
Inset: driver's position

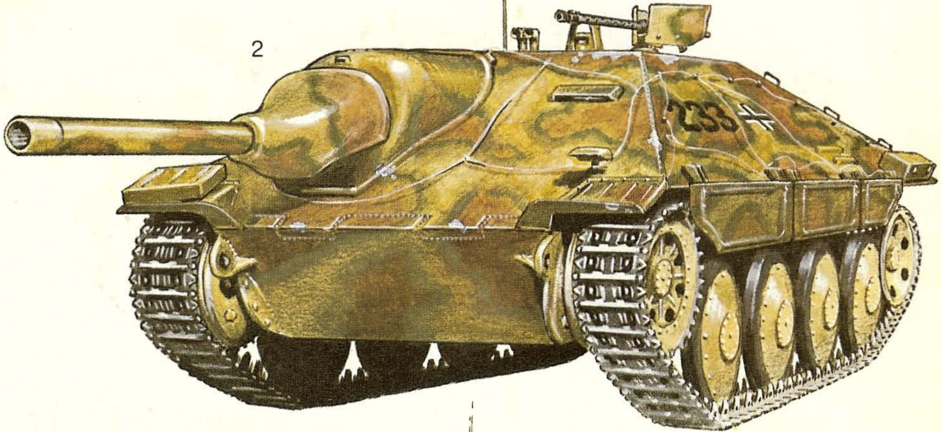
3 Brummbär, unit unknown; Italy, 1943-44

4 Brummbär Abschlusserie, 24. Panzer Div.; Russia, September 1944

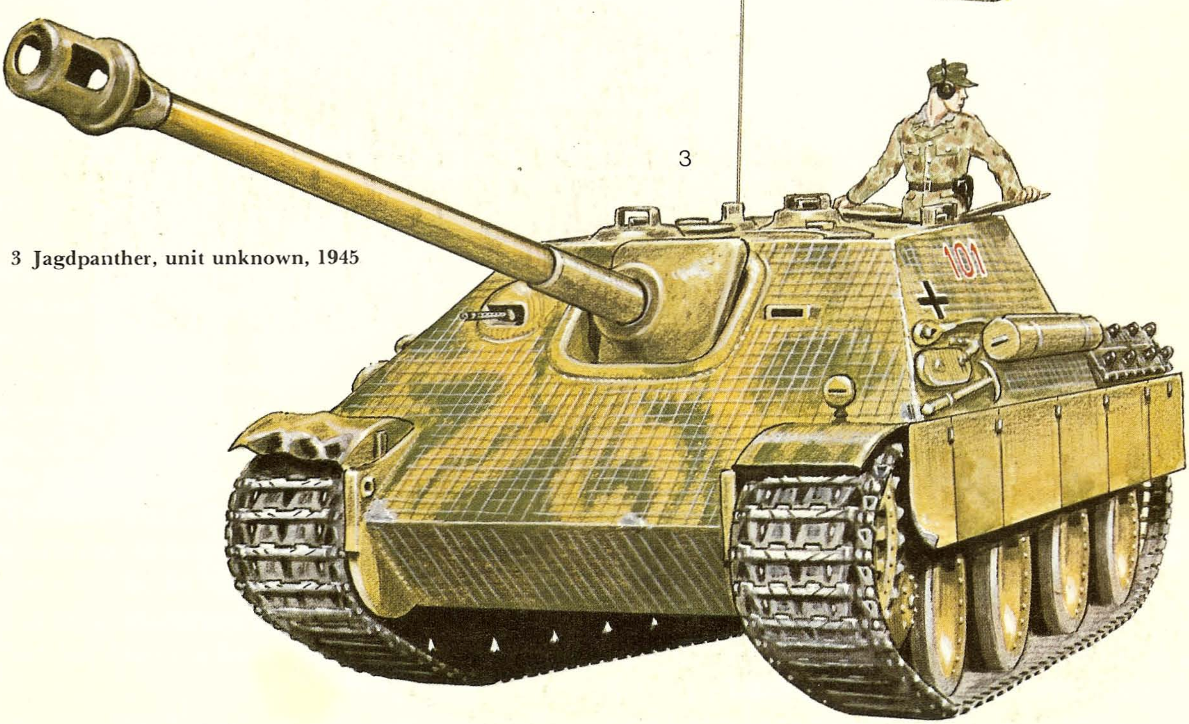
F

1 Panzerjäger IVF (L/48), 3/228 Panzerjäger Abt., 116. Panzer Div.; Normandy, 1944





2 Jagdpanzer 38(t) Hetzer, unit unknown, 1945



3 Jagdpanther, unit unknown, 1945

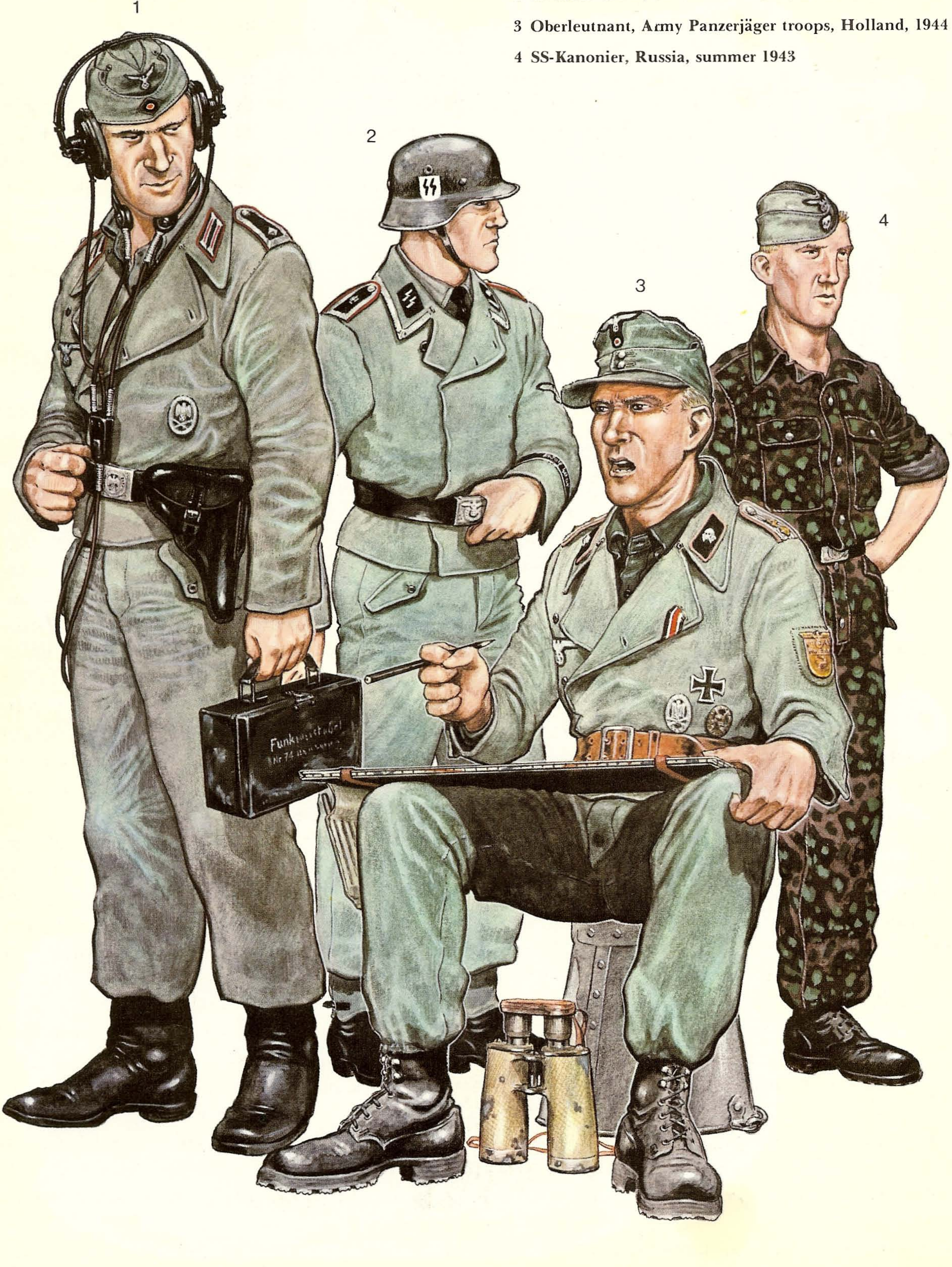
G

1 Oberwachtmeister, Sturmartillerie, 1942

2 SS-Scharführer, StuG. Abt. 'LAH', 1942

3 Oberleutnant, Army Panzerjäger troops, Holland, 1944

4 SS-Kanonier, Russia, summer 1943



H

generally carried a more powerful weapon than their opponents and engaged at the longest range possible, preferably beyond that at which the tanks' guns ceased to be effective. If, as frequently occurred on the open steppe or in the desert, the terrain did not offer suitable static fire positions, a running fight might develop, in which the tank destroyers used their mobility to keep the range open.

Active Service

From 1941 onwards tank destroyers were actively engaged on every front on which the German Army fought. The following examples will give some idea of their capabilities:

First, an action fought by the Marders of 33 Panzerjäger Abteilung, working in conjunction with an armoured car troop from 5th Light Division's reconnaissance battalion on 15 June 1941, the first day of Operation 'Battleaxe'. Their opponents were the Matildas of 'A' Squadron, 4th Royal Tank Regiment, which had been detailed to capture a feature known as Point 206: the squadron was operating under strength, two troops having been detached for duty elsewhere.

'"Ten enemy tanks four kilometers south of 206!"

'Shortly after that three Mark IIs* move in to the attack.

'A decidedly awkward situation. There is not much the German armoured cars can do. True, they have self-propelled gun mountings with them, anti-tank guns of the tank-hunters mounted on tracks. Something can be done with these, certainly, but initially it seems not a great deal, for the Mark IIs scarcely seem to notice as the first rounds go flying off their thick hides. The tanks turn away, but only to divide and come in at the Germans on their open flanks.

'The Germans give ground, take up new positions, charge at one of the tanks pounding along on their flanks, let him have it, turn away again and charge courageously at the next. The Mark IIs are not shooting badly, their rounds cracking past the tank hunters. But the tank-hunters are the better shots; the first Mark II takes 42 hits, shudders and stops. The crew climb out.

'The second English tank is no less tenacious. The anti-tank rounds clang loudly against its body and go screaming off high into the air. Again and again Death raps with hard knuckles all round the giant—somewhere he must be able to slip in. Eventually a cloud lies over the tank; when the wind disperses it, black smoke is seen issuing from the hatches. The crew do not emerge; through the glasses we see a hatch cover flung upwards. A man tries to get out, remains hanging, waves his arms once and then slumps back.

'The third now turns away. Five shots—five hits. Without the loss of a man the tank hunters have won the battle.'

The account is highly coloured; one cannot imagine the slow 15mph Matildas 'pounding along' on the flanks of the much faster Marders, any more than one can imagine the latter 'charging' vehicles which they outranged by a wide margin. Such colouring merely reflects delight in the acquisition of a weapon system which could deal with the hated and feared Matildas, and was a necessary ingredient for the public at home.

Nor does it tell the whole story. In a similar series of brawls 'A' Squadron was reduced to four tanks, but these did succeed in overrunning Point 206, only to be driven off again. A concentrated attack by 'B' Squadron eventually secured the objective, the German tank destroyers fading into the blue of the evening.

What is certain is that 4 RTR were quite unfamiliar with the nature of the self-propelled guns that had been opposing them all day; first impressions were that the tank destroyers were tracked versions of the heavy '88s', which had blown such holes in the regiment's 'C' Squadron during the dawn attack on Halfaya Pass. In spite of what the German account says, the tanks had not been able to get into killing range with their little 2pdrs., and had been forced to rely on long-range machine gun fire.

Concerning the next example there was no doubt whatever as to what occurred. On 30 July 1944 the 15th (Scottish) Division, supported by the 174 Churchills of 6th Guards Tank Brigade, punched a huge gap in the line held by the weak

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*Infantry Tank Mark II was the Matilda's official designation.

German 326th Infantry Division south of Caumont, Normandy, and made a six-mile advance to secure the important Hill 309.

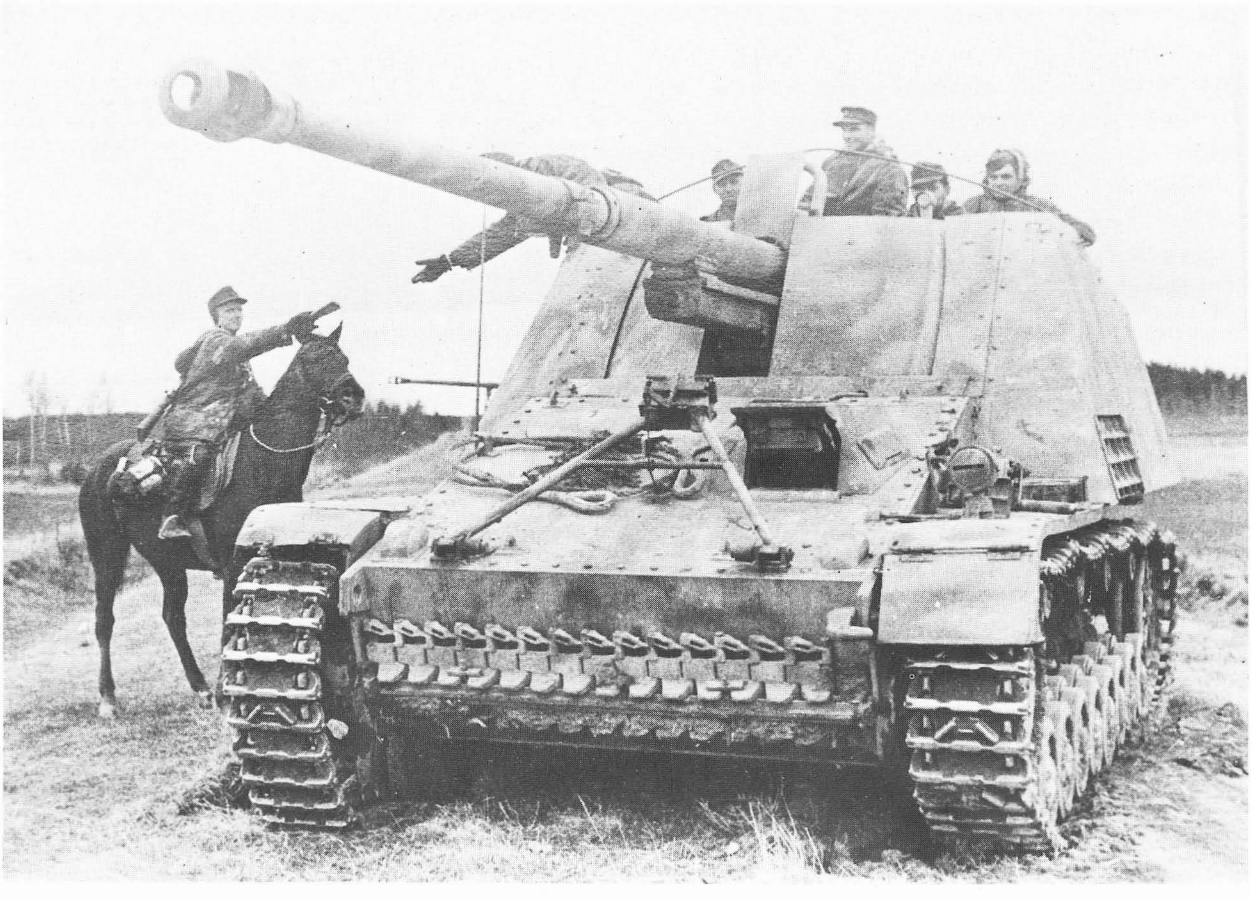
During the last phase of the advance, 3rd Battalion The Scots Guards were detailed to cover the left from the slopes of Hill 226, otherwise known as Le Homme. The regiment disposed its tanks with 'S' Squadron on the left, 'Right Flank' Squadron on the right, with RHQ just behind, the 'Left Flank' Squadron covering the rear. For a while all remained quiet, and 'S' Squadron's commander, Major W.S.I. Whitelaw (now the Home Secretary and Deputy Leader of the Conservative Party) drove down from the crest to ensure that his reserve troop had an adequate field of fire. No sooner had he arrived when the tanks of his left-hand troop erupted in smoke and flames, one after another. As he turned back towards the crest the three tanks of the centre troop were also knocked out.

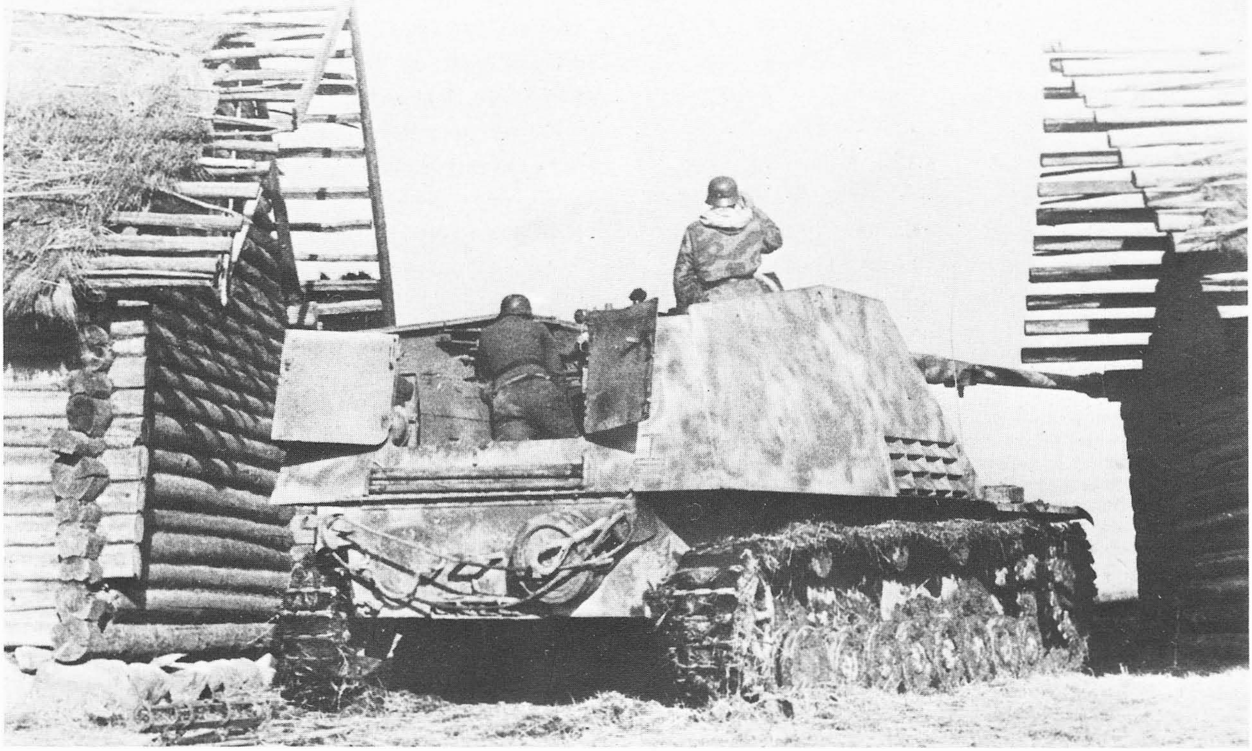
A combination of PzKpfw IV chassis and PzKpfw III transmission provided mobility for the 88mm gun in the form of the *Nashorn* heavy tank destroyer. The horseman is the mail NCO—always a welcome visitor. (Bundesarchiv)

The fire seemed to be coming from some close cover to the left, and the tank of the regiment's second-in-command, Major S.J. Cuthbert, crossed Whitelaw's front, heading in that direction. There was a shattering explosion and the turret was blown out of the vehicle. Simultaneously, 'S' Squadron's second SHQ tank was also penetrated.

Suddenly two Jagdpanthers roared up onto the crest from the left, covered by a third. The Germans shot fast and well, destroying the right-hand troop within seconds. Then they had gone, disappearing beyond the crest, taking some punishment from Whitelaw, his reserve troop, and those tanks of 'Left Flank' Squadron within view. Two were found abandoned with track damage on the forward slope, but the third made good its escape.

The whole action had taken less than two minutes, had cost the Scots Guards eleven Churchills, and reduced 'S' Squadron to four vehicles. The Jagdpanthers belonged to 654





A first class gun platform, the *Nashorn* was poorly protected, and its great size made concealment difficult. A heavy, soft mottle of brown and green patterns the basic ochre of this vehicle; on the original print a tactical marking (a 'T' rising from the oval 'tracked' symbol) may be seen below and right of the open doors. Infuriatingly, the right-hand door covers a large, shield-based unit emblem of which the edge is just visible. (Bundesarchiv)

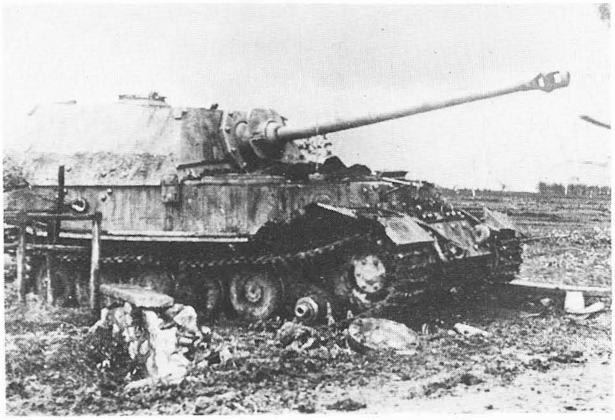
Heavy Tank Destroyer Battalion, veterans of Kursk, and had shown what could be done even when thrown into action at immediate notice and without thorough reconnaissance; it seems unlikely that they would have broken cover had they realized in what strength Le Homme was held, the sight of two further Churchill squadrons prompting their hasty retreat across the crest.

* * *

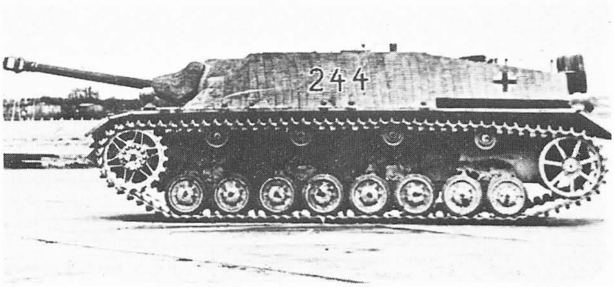
The assault gun and the big-gun tank destroyer were phenomena of the Second World War, and disappeared because technology had rendered them obsolete. The establishment of all-arms battlegroups, including a multitude of armoured personnel carriers, has meant that the infantry no longer require specialist vehicles to shoot them into an objective, the rôle of the assault gun being absorbed into that of the tank. The big-gun tank destroyer survived only so long as it could outrange the tank. Once tanks began carrying larger guns, the need for it disappeared. Today's tank destroyers carry guided missiles, a far cry from the simple principles of the early Marders. In their day both weapon systems offered ingenious, inexpensive and effective solutions to specific battlefield problems. Those Allied tank crews who took part in the last months of the war against Germany will remember only too well the sudden, sharp transmission from their point troop, 'Contact! SP! . . .'

The Plates

The colour plates in the centre of this book are all based on wartime photos of specific individual vehicles, and do not represent theoretical reconstructions from written data. In some cases it has been necessary to make an educated guess at camouflage colours: in black and white photos it is extremely hard to tell the difference between the dark green and dark red-brown paints issued to vehicle crews from 1943 onwards, for camouflaging the basic ochre yellow factory finish of their equipment. Different degrees of dilution,



The 67-ton *Elefant* had a disastrous debut at Kursk, where it fell victim to infantry tank-hunting squads against which it had no defence. Most survivors of '*Zitadelle*' were sent to Italy, where they were valuable in the semi-static defensive conditions. This one is evidently a mine casualty. Note solid 100mm armour slab bolted to the front plate, which was itself 100mm thick. The rudimentary cupola and the machine gun mounted through the frontal armour were improvements made as a result of the losses at Kursk. (Bundesarchiv)



'Guderian's Duck'—the *Jagdpanzer IV*, armed with the 75mm Pak 39, 48 calibres long. Marking positions and styles are typical of this vehicle. Side skirts were normally carried; and note *Zimmerit* finish. (RAC Tank Museum)

and the effects of exposure over different periods, make this inevitable. Sometimes the setting of a photograph is helpful; e.g., Plate F3, where the photo from which we worked shows a vehicle concealed in an Italian grove in summertime—here it is a fair assumption that green rather than brown was used for the camouflage.

A: StuG III Ausf. G fighting compartment interiors, left (top) and right (bottom)

This is a command vehicle, with radio equipment on both sides of the fighting compartment—the normal commander's set may just be seen above his arms. The shelf on which this rested seems from photos to have been enclosed along the front, in some vehicles, by a 'fiddle' made from a plank, and loose gear was stowed along it. The *Leutnant* battery commander, his silver-piped *Einheitsfeldmütze* turned backwards in the style of a U-boat commander, is using the binocular sight protruding from his cupola. The *Unteroffizier* gunner uses his own sighting periscope, which protrudes through an opening in the compartment roof. He and the loader, partly visible on the right, wear the earlier *Feldmützen.* The latter loads a round of HE, its olive green head stencilled '13' in black. Below the ventilator intake and trunking on the rear wall is a rack and a row of spring clips for stick grenades; above it, an MP.40 and a set of magazine pouches are fixed for quick access.

The loader in the lower view wears the reversible padded winter jacket, 'snow' side out, and the 1943 *Einheitsfeldmütze.* A second MP.40 and its magazine pouches are fixed to the rear wall behind him. On his right is the extra command radio equipment which he operated; extra ammunition is piled in front of this. The whole crew wear standard headset and throat-microphone equipment. Spare sets seem often to have been hung on the rear bulkhead. Loose personal gear would normally be packed in every available space, such as along the top of the radios.

B1: StuG III Ausf. B, 2. Batterie, StuG Abteilung 192; Gomel airfield, Russia, August 1941

A heavily stowed vehicle; in the photo on which this painting is based, no. 25 is more heavily camouflaged with birch saplings—we have removed most of them for clarity. The death's-head insignia is that of the Abteilung and seems to have been carried by all vehicles; other photos show it repeated (alternatively marked?) on the left hull side (both sides?) forward of the radio housing. The letter 'S' was carried by the Batteriestab, i.e. HQ, guns; in this case 25 seems to have been removed from its usual place in the order of battle to do temporary duty as the battery commander's mount, it being a simple matter to paint the relevant insignia in the standard position. The tactical marking stencilled on the bow plate (detail inset) appears from comparison of tones to be in yellow. The dust of the summer advance of

1941 seems to have given the overall 'Panzer grey' finish a very faded appearance, which we have not tried to reproduce.

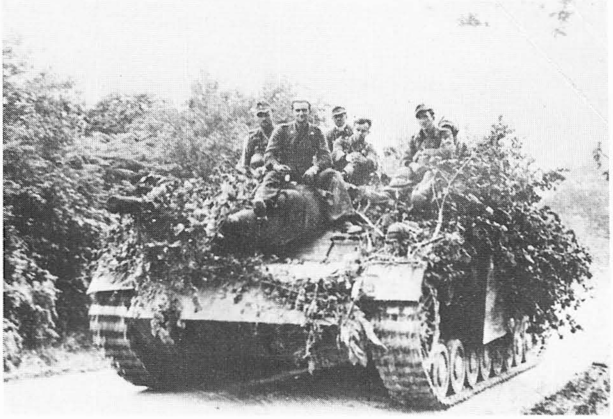
The unditching beam appears in many photos; sometimes an untrimmed log was used. Typical exterior stowage included jerrycans, wooden crates, folded tarpaulins, crew helmets and canteens, etc. The crew wore the field grey uniform of Panzer cut, with dark green collar patches trimmed red, and silver skulls. Although it was not generally seen at the front, the grey version of the beret-like *Schutzmütze* is clearly visible in a published photo of an NCO of this battalion at this period.

B2: StuG III Ausf. B, 3. Batterie, StuG Abteilung 203; Smolensk, Russia, July 1941

The elephant insignia of the Abteilung appears on this vehicle in both left and right side presentations, on hull side and rear respectively. The white '33' identifies the third gun of the third battery. Again, the overall finish is 'Panzer grey'. Improvised jerrycan racks of iron strip were often welded to the rear deck, and took many forms. Photos of assault guns in Russia throughout the war seem to indicate that whole spare sets of tracks and many spare bogies were often carried on the rear deck, the former coiled loosely on their sides. A bucket was a typical item of 'acquired' external stowage. The elephant and two-digit marking style seems to have been retained by this battalion well into the war—see Plate D, item 7.

C1: StuG III Ausf. G, 2. SS-Panzer-Division 'Das Reich'; Kursk, Russia, July 1943

The most striking structural difference from the early versions, seen from this angle, is the adoption of spaced skirt-armour hung from side rails. The vehicle is now finished in overall dark ochre yellow; the crew added the brown and green camouflage paint at their own or their commanders' discretion, and patterns were enormously varied. A loose, random series of 'curls' is visible in the photo from which we take this illustration. It also shows an air recognition flag tied over the rear stowage; an absence of any unit/vehicle identification numbers (not uncommon, from 1943 onwards); and the tactical, national and divisional insignia all marked on the rear hull plate. The tactical insignia identifies this gun as of 1. Batterie, SS-Sturmgeschütz-Abteilung 2. The divisional insignia is the two-bar type adopted temporarily for the Kursk operation; see also Plate D, item 12. This is a command vehicle, as witnessed by the two radio aerials.



Allied air superiority in Normandy was total, and few movements were made by day; this *Jagdpanzer IV* risks a short hop, well camouflaged with a mass of foliage to break up its outline and cover reflecting surfaces. A second crew seems to be riding this gun. Among this small group, all of whom appear to wear the grey cross-over jacket and peaked *Einheitsfeldmütze*, at least two and possibly three collar patch styles can be seen on the original print: skull patches in black piped with pink, and green piped with red; and at least one example of *Litzen*. See commentary on colour plate H. (Bundesarchiv)

C2: StuG III Ausf. G, 16. SS-Panzer-Grenadier-Division 'Reichsführer'; Italy, January 1944

One of the less well-known Waffen-SS formations, this understrength division did provide some units for the Anzio fighting, and several photos of StuG IIIs in transit in Italy have been published. The vehicle on which we base this painting was apparently finished in factory ochre all over, without camouflage; note also that the commander wears the normal four-pocket Waffen-SS service tunic instead of the special double-breasted cross-over jacket of the vehicle crews' uniform. The individual vehicle number is marked on the hull side in black, and the tactical marking on the bow plate, identifying 1. Batterie of the Abteilung, shows a slight variation from the example above. One photo which shows the rear of a column of these vehicles shows the non-standard presentation of the national cross illustrated in the upper inset detail. The black SS-rune insignia marked on the mantlet and rear plate of all vehicles in this sequence of photos was not, in fact, the official divisional insignia, and is not fully explained; the recognized vehicle marking for *'Reichsführer'* was a stylized presentation of Heinrich Himmler's oakleaf collar patch design.

D: Insignia details, StuG III:

1 Hull and trackguard markings of a StuG III Ausf. D of 189 Sturmgeschütz Abteilung, photographed in Russia early in the 1941 campaign. The national cross is in white outline on the overall dark 'Panzer grey' finish; the white 'C' is presumably a battery letter. The left front trackguard bears the Abteilung insignia, a fairly uncommon placing. This is vertically halved: on the right, half of a black heraldic spread eagle, and on the left, in white with black details, half of a medieval knight standing with a grounded shield bearing a sunburst device. Note unusual headlamp guards; and periscopic binoculars protruding from commander's hatch.

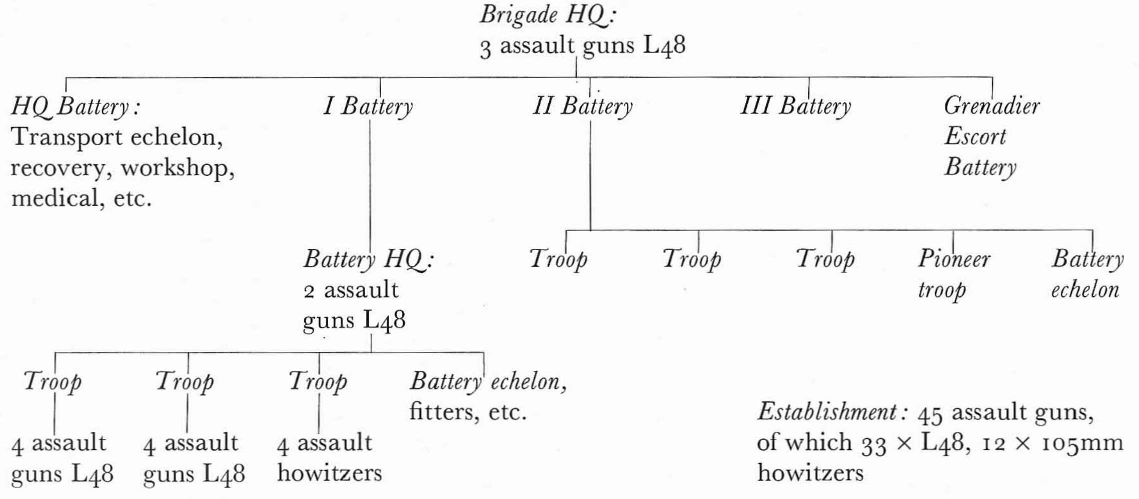
2 Rear view of a StuG III Ausf. G of 286 StuG. Brigade, Russia 1943–44. The heavily stowed vehicle has skirt armour, and a large wooden stowage crate across the rear deck. The finish appears to be weathered but uncamouflaged overall dark ochre. The national cross appears in the position which seems to have been typical for the StuG III; left of it is the brigade insignia, two small black Maltese crosses on white, and at the right end of the rear hull plate is the individual vehicle number in red trimmed with white—presumably 9th vehicle, 1st Battery.

3 Rear hull markings of StuG III Ausf. G of 259 StuG. Brigade, Russia 1943–44. The ochre factory finish appears to be very lightly and indistinctly camouflaged with either green or brown. The black individual vehicle number appears alone, without battery identification, and the brigade insignia is stencilled to the right in black and white: an eagle's head on a white Maltese cross on a black shield.

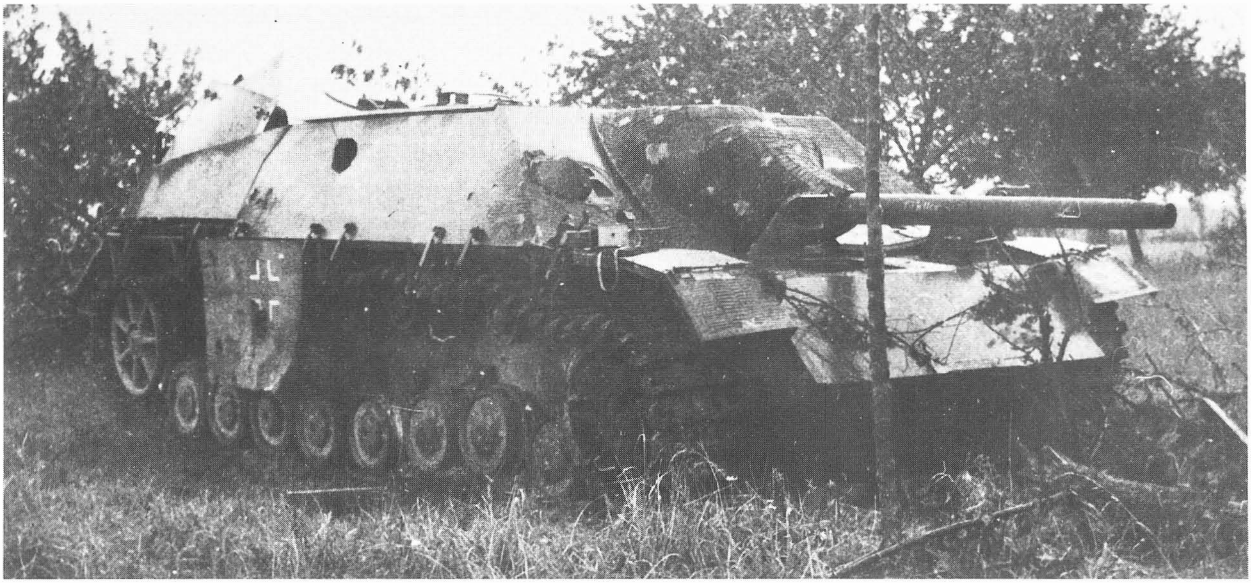
4 Hull right side markings of StuG III Ausf. F, Pz-Gren. Div. *'Grossdeutschland'*, Russia, summer 1943. Soft brown camouflage streaks over ochre finish. Battery and vehicle numbers in plain white, and divisional insignia forward of cross.

5 Rear hull markings of an unidentified StuG III Ausf. G, Russia, autumn 1943. No side markings are apparent in the photograph of this vehicle. The ace of spades is not listed as a unit insignia in German records, but these are very incomplete.

Assault Artillery Brigade, 1944–45


Brigade HQ:
3 assault guns L48
HQ Battery:
Transport echelon, recovery, workshop, medical, etc.
I Battery
II Battery
III Battery
Grenadier Escort Battery
Battery HQ:
2 assault guns L48
Troop
Troop
Troop
Pioneer troop
Battery echelon
Troop
Troop
Troop
Battery echelon,
fitters, etc.
4 assault guns L48
4 assault guns L48
4 assault howitzers

Establishment: 45 assault guns, of which 33 × L48, 12 × 105mm howitzers



Later models of the *Jagdpanzer IV* mounted a 70-calibre gun without muzzle brake. This badly battered example fell to two well-placed flank shots in a Normandy orchard. To the left of the mantlet is the swivelling conical cover of the machine gun port. At 6ft 1in, three inches lower even than the early model StuG III, this formidable tank destroyer could adopt concealed firing positions in the slightest fold of dead ground. (RAC Tank Museum)

6 Hull right side markings of StuG III Ausf. F, 191 StuG. Brigade, Russia, 1943. The brigade's charging bison insignia appears to have been marked with a stencil when the original 'Panzer grey' overall finish was re-painted ochre.

7 Right hull side markings of StuG III Ausf. F of 203 StuG. Brigade in Russia, 1943. Study of the relative tones in a photograph of this vehicle suggests that the brigade's elephant insignia appeared in the ochre ground colour on a black panel. Note the unusually hard-edged camouflage pattern, probably in green.

8 Hull side markings of StuG III Ausf. G of 8. SS-Kavallerie-Division *'Florian Geyer'*; Russia, winter 1943–44. A most unusual, in fact in the editor's experience unique example of the actual name of an SS division being painted on a vehicle. The photograph from which it is taken shows the gun to be camouflaged in a dirty but complete coat of white, apart from the ochre patch left around the name. No other markings are apparent, on the rear hull plate at least. The vehicle is heavily stowed, with a large wooden crate on the engine decking, and carries a swastika air recognition flag over the rear deck stowage.

9 Mantlet decoration of StuG III Ausf. G of an unidentified unit, Russia, 1944. The photograph shows a complete battery, at least, all with the same decoration. Finish appears to be uncamouflaged ochre, and markings are limited, as far as we can tell, to a three-figure number carried centrally on the skirt armour, e.g. '111', possibly in red trimmed with white.

10 Front and rear markings of StuG III Ausf. E of 2 Battery, StuG. Abteilung 249, photographed in the Crimea in the summer of 1942. The overall grey finish is heavily weathered and dusty in the photographs. The 'B' could be either a battery or an individual vehicle identification—another vehicle in the same group bears the letter 'G', so the latter is perhaps more likely. The 'Wolf's Tongue' rune is the Abteilung insignia.

11 Styles of insignia used by the assault gun battery of the *'Leibstandarte SS Adolf Hitler'* regimental combat group in France, 1940 (left); and by the StuG. battalion of the enlarged 'LAH' Brigade in the Balkans, 1941 (right)—both in rear hull presentations. In the former case an additional, apparently battery, emblem has been photographed—a simple left profile of a dog's head (wolf?) in solid white, painted centrally on the rear plate. (StuG. Abteilung 261 later used a wolf-head emblem.)

12 Divisional insignia carried by StuG III of 3. SS-Pz-Div. '*Totenkopf*' during the Kursk offensive, July 1943.

E: Marder colour schemes

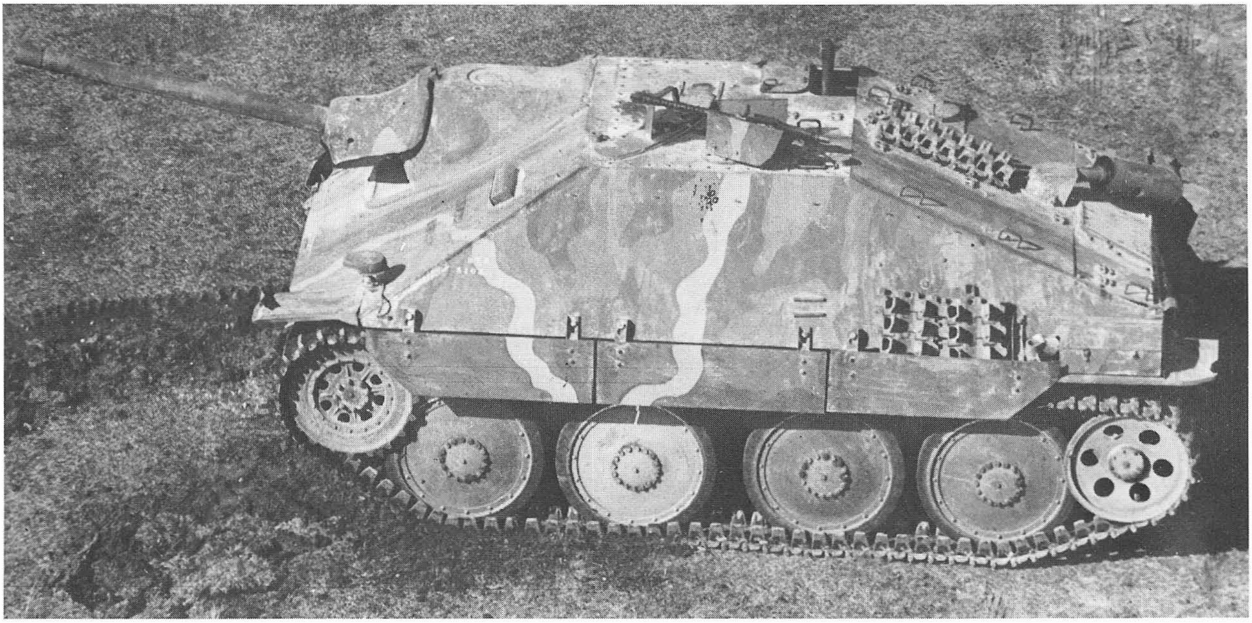
These illustrations display the full range of typical applications of the brown and green camouflage paints over the ochre finish; at the same time they emphasize the great diversity of chassis and armament types embraced by the 'Marder' SP gun series. In each case we have reproduced, roughly, the uniforms worn by personnel in the photos from which we take the vehicle subjects.

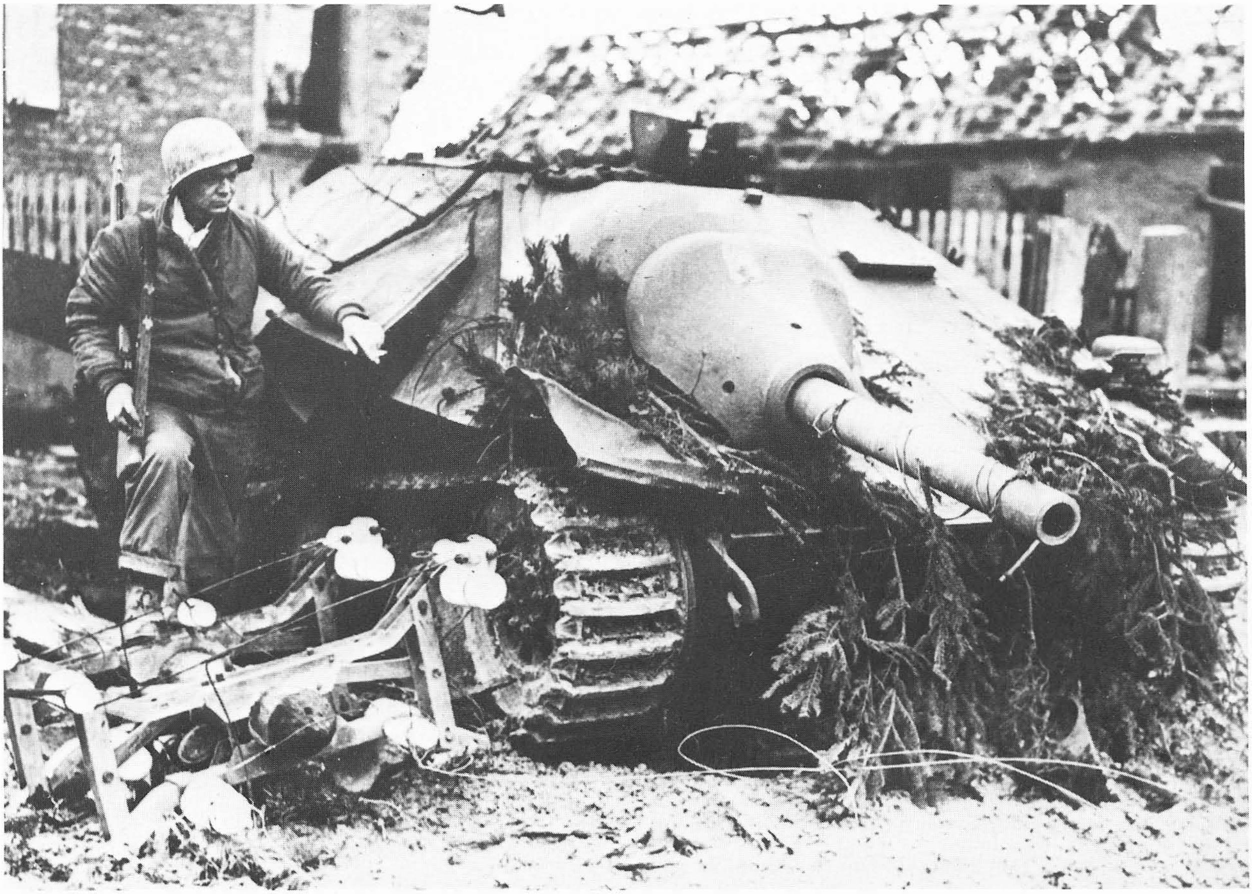
1 *SdKfz 132 Marder II, 7.62cm Pak(r); 5. SS-Panzer-Grenadier-Division 'Wiking', Orel sector, Russia, autumn 1943*
Plain, uncamouflaged ochre, with light foliage camouflage added to wires strung around the external hull brackets. No painted markings apart from national cross. The chalked 'WK' on the hull side well forward may be some purely coincidental temporary addition; but it is tempting to equate it with a hasty abbreviation of the divisional name? Crew in field grey service uniform and camouflage smocks, helmet covers.

2 *SdKfz 131 Marder, 7.5cm Pak 40/2; 29. Infanterie-Division (Mot.), Russia 1942–43*
This very well-known and widely illustrated vehicle, '*Kohlenklau*', is the subject of the 1/35th scale model kit by Tamiya. A soft, sparse blotching of much-diluted green paint has been added to the factory finish. Markings are lavish; apart from the cross and the cartoon 'coal-thief' above the name, there is a red triangle with a white centre bearing '1A' in black—presumably a troop and vehicle insignia, but untypical in the extreme. Photos of this vehicle have been identified as being taken in autumn 1942; they are certainly set in muddy enough terrain for the Russian autumn, and the division's virtual annihilation in the Stalingrad fighting that winter suggests a date of 1942 for the photos. If this is so, then the use of the *Einheitsfeldmütze* by the crew is puzzling, as it is not supposed to have been issued until the next year. It is worn with the normal four-pocket service uniform.

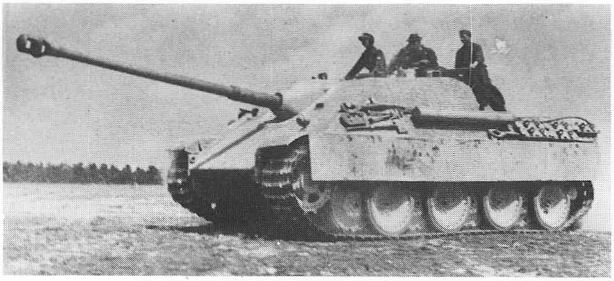
3 *SdKfz 138 Marder III, 7.5cm Pak 40/3; unidentified Army Panzerjäger unit, Russia, summer 1943*
The green and brown paints have now been applied in large, irregular, soft-edged areas all over the upper surface of the vehicle, though not extending over the suspension. Batterie, Zug and individual gun numbers are marked in the normal Panzer style. Crewmen wear field grey uniforms of Panzer cut, with black, pink-piped collar

The *Hetzer*—'Troublemaker'—was another tank destroyer based on the old Czech 38t chassis. Note colour scheme; remote control machine gun on roof; and, at right rear corner of roof, the commander's periscopic binoculars protruding through the horizontal front portion of the commander's hatch. (RAC Tank Museum)





The original print shows the same colour scheme on this *Hetzer* caught in a village under bombardment; from the massive fractures in the main armour, it seems to have suffered a direct hit from a large-calibre high explosive shell. (RAC Tank Museum)



The elegant *Jagdpanther*, seen here clean and with 'textbook' stowage during unit working-up exercises in Germany. The cylindrical auxiliary fuel tank carried on the superstructure side can be seen clearly. The commander of this gun wears a metal arm-shield, commemorating service in the Kuban or Crimea—see colour plate H. (Bundesarchiv)

patches bearing silver skulls, and pink-piped shoulder-straps.

4 *SdKfz 139 Marder III, 7.62cm Pak 36(r); unidentified unit, Russia, summer 1943*
The green and brown areas now cover the whole vehicle, leaving only thin channels of ochre visible between them. The suspension and lower hull side are camouflaged—even the wooden crate added at the rear for crew stowage has been roughly streaked with paint. Markings are limited to the cross, and a vehicle name in black shadowed with white—'Heidei', painted just behind the aerial. Crew wear grey shirts, reed green denim trousers, field grey caps.

5 *SdKfz 138 Marder, 7.5cm Pak 40/3 in rear housing; unidentified unit, Russia, autumn 1943*
A pattern of smaller, harder-edged streaks of brown and green, used with little dilution and apparently scrubbed on with a brush or broom, completely covers all surfaces of this vehicle, leaving only the narrowest of ochre divisions. There are no markings visible apart from the cross. A tarpaulin is rigged over the fighting compartment—the photo on which we base this was taken in rainy weather. The crew seem to wear grey four-pocket service uniforms and *Einheitsfeldmützen*.

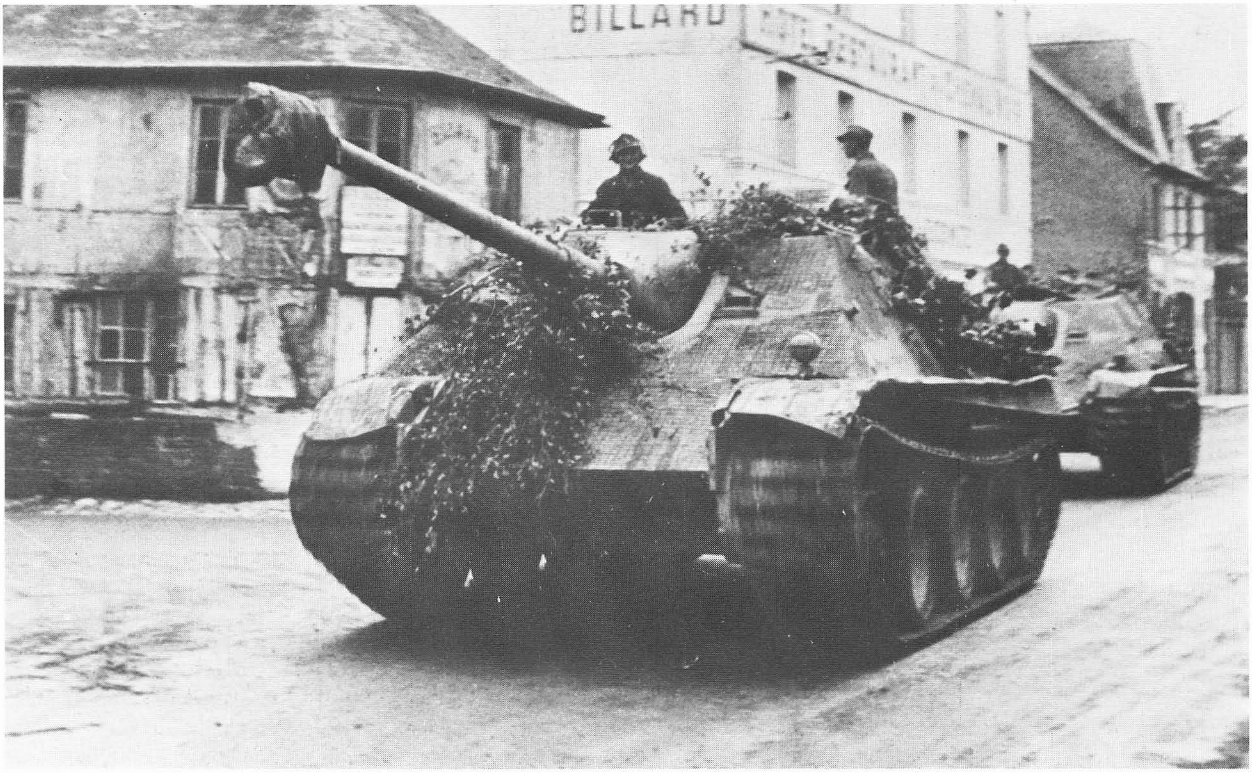
F: Brummbär colour schemes and markings
Details of unit deployment of this impressive vehicle are sparse, and these paintings cannot be tied down with any confidence except in one case. They are our interpretations of wartime photographs, and if any reader can assist in identifying the subject vehicles more closely we would be glad to hear from him.

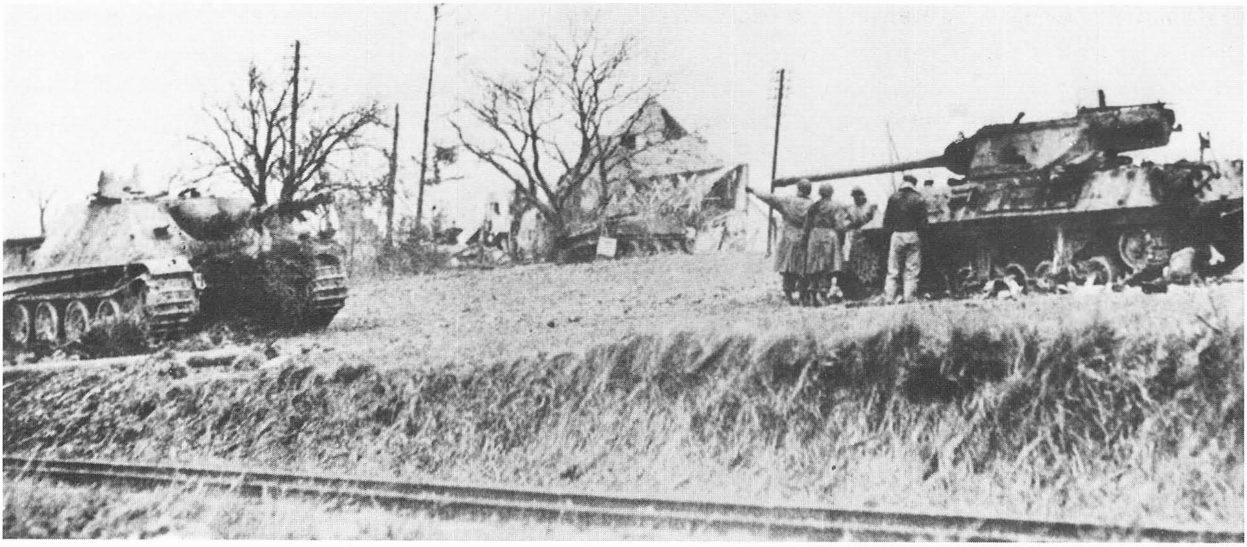
1 and **2** are both, apparently, vehicles which served in Russia in 1943–44, and which were photographed after being disabled. (1) has a coating of *Zimmerit* paste over all vertical surfaces, including the exposed hull sides above the road wheels—an unsual feature, but one which made sense for a vehicle designed for street fighting at short ranges, as this area was particularly vulnerable. The dark green and brown paint seems to have been added to the ochre factory finish by this crew in an unusually crude way. The white number presumably identifies a troop and the individual vehicle. Most of the few available photos show Brummbär crews wearing black Panzer uniform. (2) has no *Zimmerit*, but has side skirt armour and a more conventional camouflage finish. The small Roman 'II' in yellow trimmed with white might suggest a 2nd Bn. HQ vehicle. The inset scrap views show in each case the driver's compartment of these vehicles—the early box-type with top periscope, and the later type using the same armoured visor arrangement as the Tiger Ausf. E tank.

3 appears in a photograph elsewhere in this book, taking cover in an Italian grove. The picture was clearly taken in summer, and given the season and terrain it is a fair assumption that the interesting 'creeper'-like camouflage spreading down from the top of the fighting compartment was in green rather than brown. Again, *Zimmerit* paste protects the hull and fighting compartment vertical surfaces from the attachment of magnetic or 'sticky' bombs—though not, apparently, the thin sheet metal of the rear stowage bins, which were unimportant. The single white '1' must be a vehicle number rather than a unit identification.

4 is an example of the improved Brummbär Abschlusserie—note added machine gun in ball mount high on left side of glacis, and new pro-

Jagdpanthers moving up to the Invasion Front, 1944. Spaces are left in the *Zimmerit* to the right of the drivers' visors, for attaching rail shipping labels. The performance of this tank destroyer did not belie its beautiful lines and purposeful air; in less than two minutes three of them all but destroyed a squadron of Churchill tanks on 30 July at Hill 226. (Bundesarchiv)





Greek meets Greek . . . a *Jagdpanther* and a 90mm M36, both knocked out, illustrate two contrasting approaches to tank destroyer design. North Germany, 1945. (Capt. C.A. Heckethorn, 899 TD Bn.)

truding section in rear face of fighting compartment. The skirt armour now attaches by quick-release hooks and brackets, so that collisions with walls, etc., no longer tear the plates but simply knock them off. The *Zimmerit*, again, extends right down among the suspension details, and the camouflage is entirely conventional. This vehicle has been identified in print as belonging to 1. Batterie, Pz-Artillerie-Regiment 89, 24. Panzer-Division, serving in Russia in September 1944. The white '10' low and forward on the hull probably identifies a battery HQ vehicle, if this is the case. (Modellers might care to recall, if planning to reproduce this colour scheme, that 24. Pz-Div. personnel wore golden yellow instead of rose pink piping on their black Panzer uniforms, in memory of the old 1. Kavallerie-Division from which the formation was raised.)

G1: Panzerjäger IV Ausf. F (L48) of 3/228 Panzerjäger Abteilung, 116 Panzer Division; Normandy, 1944

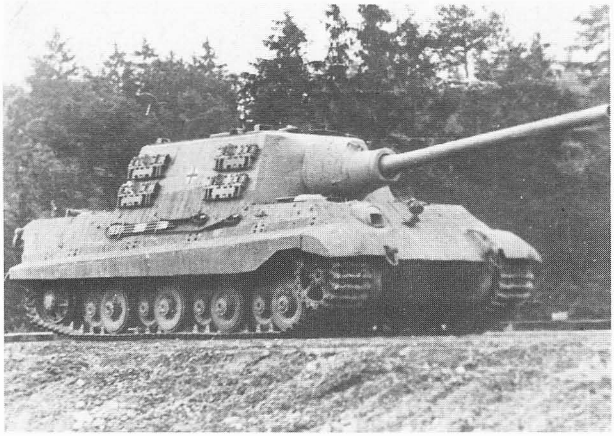
A frequently illustrated but important vehicle—almost unique in offering the red-eyed photo researcher a clear example of unit markings painted on an SP gun this late in the war! The overall ochre finish, *Zimmerit* paste and skirt armour are typical of the period, as is the temporary foliage camouflage against Allied air power—we have deliberately 'removed' a good deal of this birch scrub here, to show the markings clearly. The divisional insignia appears on the left of the front glacis plate above the tactical marking for a Panzerjäger unit and the company number, all in white. We have assumed the hull number, and its similar style of painting, but the position and size are typical of these vehicles.

G2: Jagdpanzer 38t Hetzer; unidentified unit, 1945

Probably photographed on the Eastern Front in the closing months of the war, this Hetzer offers a very interesting colour scheme—a sort of 'leopard-skin' effect in faded, brushed-out brown with green edges on the ochre ground. A more common scheme of long streaks of brown, green and even white on the ochre ground has frequently been illustrated; Hetzers also appeared in the well-documented 'ambush' scheme of large rounded 'clouds' of brown and green with a 'sun through leaves' overall spotting effect superimposed. Wire cables are criss-crossed between the various brackets on hull sides and front for the attachment of foliage; one may assume that the black '233' identifies company/battery, troop and vehicle in the conventional way.

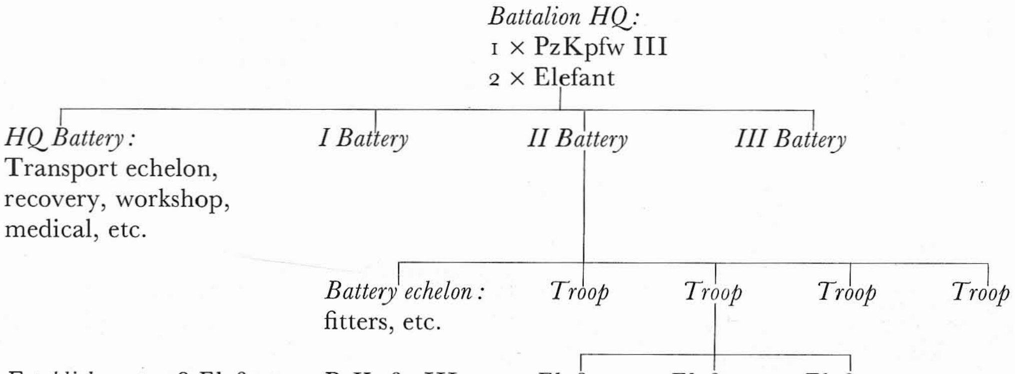
G3: Jagdpanther; unidentified unit, 1945

Confirmed colour and marking variations for this most elegant of all German SP guns are extremely rare. By this stage in the war unit markings were virtually unknown. The example illustrated



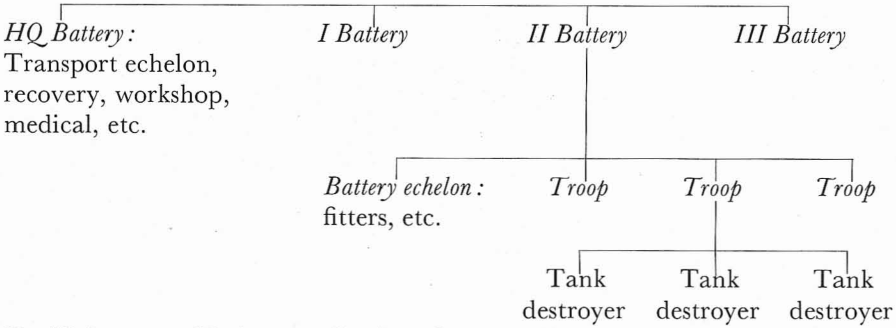
Weighing over seventy tons and mounting a 128mm gun, the *Jagdtiger* was the most powerful armoured fighting vehicle of the war. Its practical value was less striking, however; it was subject to breakdowns and had a slow rate of fire. (RAC Tank Museum)

Order of Battle: 653 and 654 Heavy Tank Destroyer Bns., Kursk, July 1943


Battalion HQ:
1 × PzKpfw III
2 × Elefant
HQ Battery:
Transport echelon, recovery, workshop, medical, etc.
I Battery
II Battery
III Battery
Battery echelon:
fitters, etc.
Troop
Troop
Troop
Troop
Elefant
Elefant
Elefant

Establishment: 38 Elefants, 1 PzKpfw III

Order of Battle, Heavy Tank Destroyer Battalion

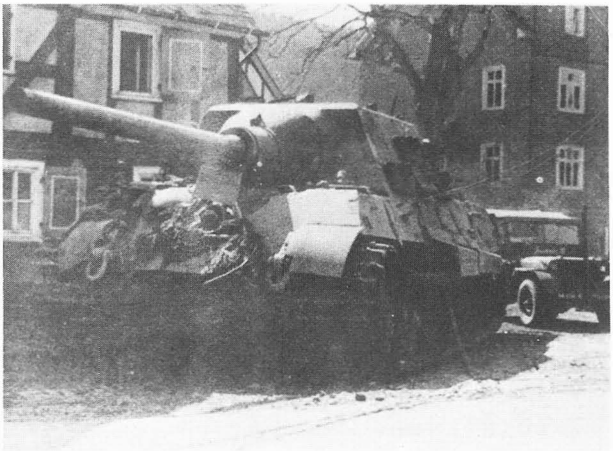

HQ Battery:
Transport echelon, recovery, workshop, medical, etc.
I Battery
II Battery
III Battery
Battery echelon:
fitters, etc.
Troop
Troop
Troop
Tank destroyer
Tank destroyer
Tank destroyer

Establishment: 30 Nashorn or Jagdpanther.
The standard Tank Destroyer Bn. was organized on very similar lines.

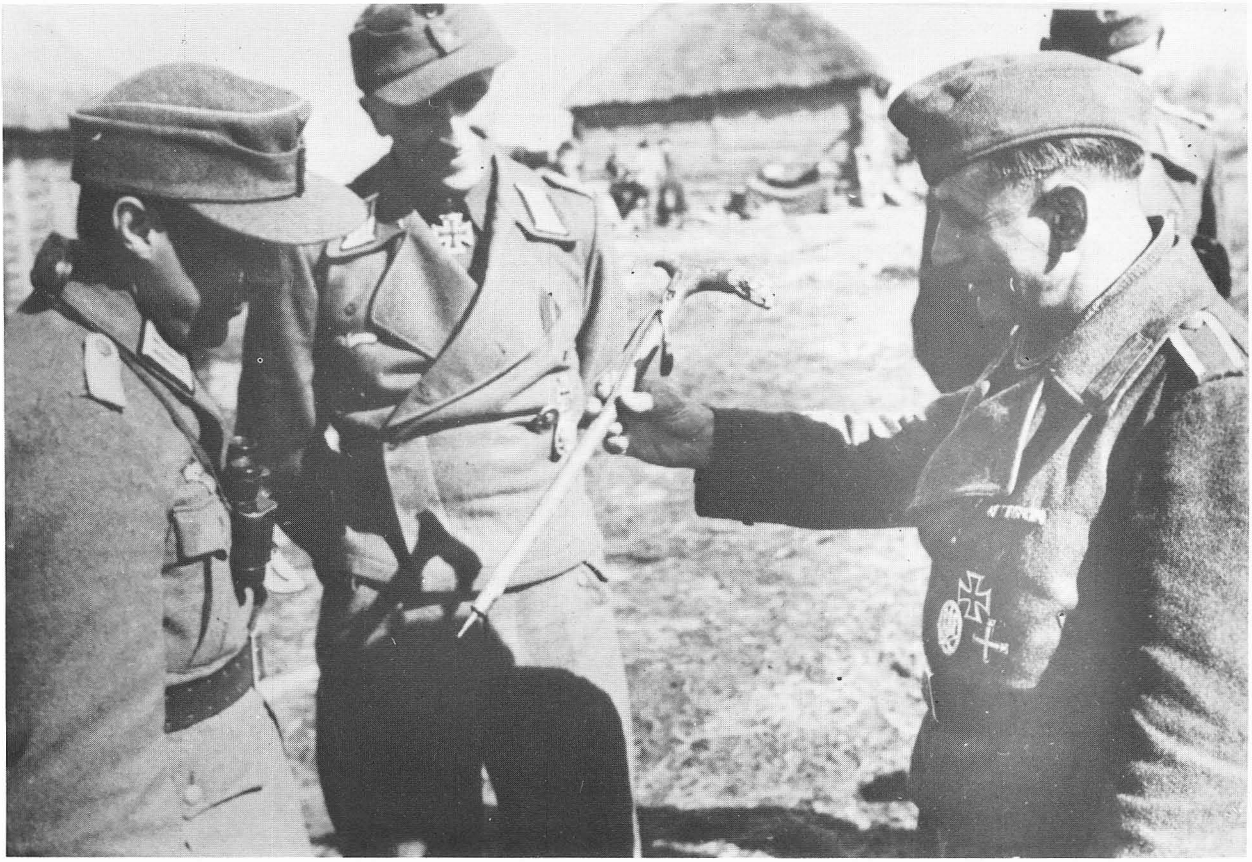
carries national insignia and company HQ numbers in conventional styles and positions for this vehicle. Note the soft, random green overspray and the 'waffle-plate' application of *Zimmerit*.

H1: Oberwachtmeister, Sturmartillerie, 1942

The basic vehicle uniform worn by Army assault gun and SP anti-tank units throughout the war was this field grey version of the black Panzer uniform, with double-breasted cross-over jacket and long straight trousers gathered over or into the black marching boots. The normal *Feldmütze* is worn with national insignia; a *soutache* of red artillery *Waffenfarbe* piping sometimes enclosed the cockade on its dark green diamond patch. The shoulder-straps are identical to those worn on the four-pocket service tunic: of dark green cloth (later, generally field grey) with artillery red piping and the appropriate silver-grey *Tresse* and metal pips of rank. *Oberwachtmeister* was the cavalry rank equivalent to *Oberfeldwebel* and indicates that the unit was originally formed from



An abandoned *Jagdtiger* in a German town, evidently a victim of mechanical breakdown. (Capt. C.A. Heckethorn, 899 TD Bn.)



Oberleutnant Joachim Lutzow (centre) won the Knight's Cross while commanding Assault Gun Battery 667 on the Leningrad front in September 1941. In this photo, taken in 1943 or 1944, he watches an Unteroffizier present another officer with a carved stock—a popular *Wehrmacht* custom. (Bundesarchiv)

Oberwachtmeister Hugo Primozic was promoted and awarded the Knight's Cross for the dramatic action on 15 September 1942 described in the text. An equally impressive engagement on 28 January 1943 won him the coveted Oakleaves. (Bundesarchiv)

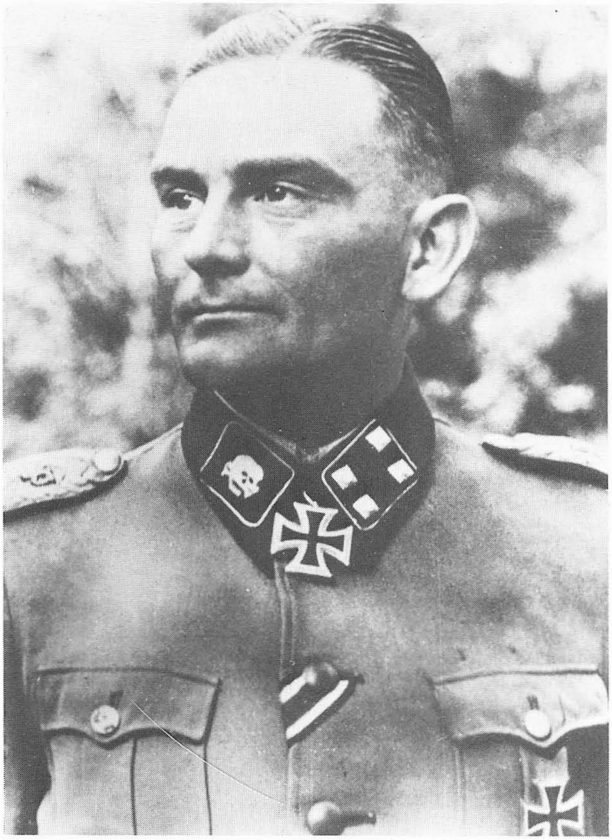
cavalry personnel—its retention was purely traditional, and no feature of the uniform or insignia differed in any way from normal artillery practice. The collar patches are the type worn increasingly from 1942 onwards: plain silver-grey *Litzen* with red 'lights' down the bars, on a green or field grey patch edged with red piping. Officers wore their normal silver *Litzen* with the green backing edged red in the same way. The right breast eagle and cap eagle are in light grey thread on dark green patches. The General Assault Badge was the normal decoration observed among SP artillery personnel, indicating participation in a certain number of combats on different days; it is worn on the lower left breast of the jacket. The headphones, with their large grey-black rubber pads, are worn in conjunction with the standard throat microphones. Belt, boots and Walther automatic holster are standard issue.

H2: SS-Scharführer, Sturmgeschütz Abteilung 'Leibstandarte Adolf Hitler', 1942

This NCO rank was the equivalent of Army *Feldwebel*; a unique distinction of the SP artillery battalion of the 'LAH' Division was the use of the silver-grey collar *Tresse* on the double-breasted vehicle jacket. Note that the Waffen-SS pattern jacket differs from Army style in having smaller lapels and a vertical, rather than a slanted, front closure. The black shoulder-straps bear artillery piping, NCO *Tresse*, and the 'LAH' cypher of the division, in silver-grey metal for a senior NCO. Standard collar patches bear the SS-rune and, on the left, the rank device—one central silver-grey pip and a double bar of lace down the front edge. The SS arm eagle and divisional cuff title are

As commander of Assault Gun Battery 901, Hauptmann Alfred Muller was awarded the Knight's Cross on 20 February 1943. He received the Oakleaves on 15 December 1943, by which time he commanded Assault Gun Battalion 191. Promoted to Oberstleutnant, he was the last commandant of the Assault Artillery School at Burg, and in April 1945 he led out the personnel of the school to do battle with the advancing US Ninth Army. He subsequently joined the Bundeswehr, and retired with the rank of Generalmajor. (Bundesarchiv)

SS-Hauptsturmführer Georg Bochmann, photographed here after promotion to SS-Sturmbannführer, won the Knight's Cross on 3 May 1942 while commanding the tank destroyer battalion of 3. SS-Panzer-Division '*Totenkopf*'. He is known to have won the Oakleaves and Swords on subsequent occasions, but records are incomplete. The Gothic 'P' of *Panzerjäger* troops can be seen clearly on his shoulder-strap. (Bundesarchiv)



worn on the left sleeve. Note the ankle boots and field grey canvas anklets with leather straps; photos show that the battalion wore these as early as the 1941 Greek campaign.

H3: Oberleutnant, Army Panzerjäger unit, Holland, 1944

In the last two years of the war the uniform and insignia regulations governing SP anti-tank units became chaotic, with orders being issued and then superseded with bewildering frequency, and frequently ignored. Combinations observed in photos include the uniform illustrated here; the black Panzer uniform with black, pink-piped collar patches with skulls or with skulls removed; the black uniform with *Litzen* collar patches; the field grey uniform with white-, green-, or red-piped *Litzen* patches; and the grey uniform with dark green patches piped red with, or without, silver skulls. The use of a Gothic 'P' on the shoulder-straps was common, and the combination of insignia shown in this figure was typical, though by no means universal. The *Einheitsfeldmütze* has national insignia on a single patch, often cut and sewn in a T-shape as here; and silver piping round the crown seam indicates commissioned rank. The shirt is now field grey rather than mouse-grey. Pink *Waffenfarbe* decorates the standard company officers' shoulder-straps and the Panzer-style collar patches; the 'P' of Panzerjäger troops and the single pip of this rank are in yellow metal. The trousers are gathered at the ankle and worn with laced ankle boots. (The long marching boots were supposed to be replaced by ankle boots by an order as early as late 1940, which reserved the long boot for infantry, but many photos show vehicle crews retaining the long type well into the war.) Decorations include the ribbon of the Iron Cross 2nd Class, the pin-back Iron Cross 1st Class, a Wound Badge in gold indicating five wounds, and the bronze Kuban Shield, a campaign decoration worn on the left arm. Note, in these three figures, the subtle variations in the shade of field grey, which were without particular significance, but which are familiar to anyone who has handled quantities of wartime German uniforms.

H4: SS-Kanonier, Sturmartillerie, Russia, summer 1943

The *Feldmütze* worn by SS and Luftwaffe troops had a smooth, 'unscooped' top edge to the turn-up; it is worn here with standard SS insignia, the eagle of distinctive shape and the death's-head being sewn to crown and turn-up in silver-grey on black backing. The one-piece camouflage-printed vehicle crew overall was unique to the Waffen-SS; it was non-reversible and appeared in a range of colours, all of typical spotted SS pattern. Here it is illustrated in a dark combination of apple green, dark green, dark brown and purple-brown. No insignia were supposed to be worn on the overall except rank devices in the form of green bars and oakleaves on a black patch on the upper left sleeve.

Farbtafeln

A (oben und unten) Linke und rechte Seiten des inneren Kampfraumes eines StuG.III Ausf.G Sturmgeschützes auf selbstfahrender Lafette. Kommandeur und Schütze schauen durch ihre verschiedene Zielperiskope; der Lader hält in der Hand eine Brisanzgranate. Im unteren Bilde trägt der Lader die umkehrbare Wintertarnjacke und die Einheitsfeldmütze; aufgehäuft vor seinem Radioapparat befinden sich die Reservegranaten. Bemerkenswert sind die MP.40s und die Handgranaten, die an der Hinterwand für Nahkampf bereitliegen.

B (oben) Der schädel ist das Emblem der StuG.Abt.192 gewesen, durch die Nummer wird das Enzelgeschütz identifiziert und das 'S' bezeichnet 'Stab' oder Batteriehauptquartier. In Kampffrontfotos sieht man selten, aber nicht unbekannterweise, die graue Ausführung der Panzerschutzmütze: ein Unteroffizier dieser Einheit hat sie ganz bestimmt getragen. **(unten)** Auf diesem Fahrzeug sieht das Abteilungsemblem sowohl zur rechten als zur linken Seite.

C (oben) Taktische Insignien der 1. Batterie; das für den Kurskfeldzug adoptierte Emblem der 'Das Reich'-division sowohl als das Nationalkreuz sind hinten auf der Lafettenwanne zu sehen. **(unten)** Die schwarzen SS-Runen waren das amtliche Emblem dieser Division, nicht, erschienen doch in vielen Photos der StuG.III in Italien. Auf einem dieser Geschütze war eine, im nebengeschilderten Ausschnitte abgebildete, aussergewöhnliche Ausführung des Nationalkreuzes zu sehen.

D Auf StuG.III beobachtete Insignien (1) StuG.III Ausf.D, StuG.Abt.189, Russland 1941. (2) StuG.III Ausf.G, StuG.Brigade 286, Russland 1943–44. (3) Lafettenwanne StuG.III Ausf.G, StuG.Bde.259, Russland 1943–44. (4) Rechte Lafettenwanne StuG.III Ausf.F, Pz. Gren. Div. 'Grossdeutschland', Russland 1943. (5) Hintere Lafettenwanne, Einheit unbekannt, Russland 1943. (6) Rechte Lafettenwanne StuG.III Ausf.F, StuG.Bde.191, Russland 1943. (7) Rechte Seite der Lafettenwanne, Stug.III Ausf.F, StuG.Bde.203, Russland 1943. (8) Lafettenwannenseiten StuG.III Ausf.G, 8.SS Kavallerie Div. 'Florian Geyer', Russland, Winter 1943; sehr aussergewöhnlicherweise wird der Divisionsname am Fahrzeug aufgetragen. (9) Verzierung einer unbekannten Einheit, auf allen Fahrzeugen mindest einer Batterie widerholt; das vorderste Fahrzeug im Originalfoto trägt ein rotes, mit weiss umrissenes III auf dem Kettenschutzpanzer. (10) Vordere und hintere Wanneninsignien, StuG.III Ausf.E, 2.Batterie, StuG.Abt.249 in der Krim, Sommer 1942—scheinbar wird das einzelne Geschütze durch das 'B' bezeichnet. (11) Insignienarten, die auf die Geschütze der Sturmgeschützkompanie 'Leibstandarte SS Adolf Hitler' in 1940 (links) und 1941 aufgetragen wurden. (12) Interimsemblen, das im Juli 1943 für den Kurskfeldzug von den Geschützen der 3.SS Pz.Div. 'Totenkopf' getragen wurde.

E Die unterschiedliche Intensität des Tarnanstrichs von dunkelgrün und dunkelbraun auf dem ockergelben Fabrikgrundanstrich wie sie auf verschiedenartige Modellen des Marder Panzerjägergeschützes auf Selbstfahrlafette zu sehen war.

F Hier werden vier Farbgebungen und Markierungen des Brummbär Sturmgeschützes dargestellt. Nur wenigen Einheiten sind genau bekannt, die mit diesem Geschütze ausgerüstet waren. Bemerkenswert sind die Einzelheiten der Fahrerabteilung, das zusätzliche Maschinengewehr im Kugelgestell des letzten Fahrzeuges und die verschiedenartige Auftragungen von 'Zimmerit'-Bewurf.

G1 Ein wohlbekanntes Fahrzeug, jedoch wichtig—sehr rares Beispiel der Aufführung zu dieser späten Kriegesperiode von sämtlichen taktischen und Divisionsemblemen auf einem Panzerkampfwagen. **G2** Interessant ist die 'Leopardenfell' Farbgebung. **G3** Nur wenige bestätigte Farbgebungen sind für dieses elegante Fahrzeug veröffentlicht worden. Dieses Beispiel wird einem Photo nach dargestellt, ist aber nicht identifiziert worden. Bemerkenswert ist das karrierte Muster der Auftragung des 'Zimmerit'-Bewurfs.

H1 Dieser Unteroffizier trägt die Normaluniform und Insignien einer Sturmgeschützeinheit. Ab 1942 sind die Tuchabzeichen am Kragen, die bei dieser Heeresgattung oft sehr unterschiedlich waren, amtlich dieses Musters gewesen. Viele Mannschaften behielten die grünen, mit rotem Schnurbesatz umrändeten Tuchabzeichen mit dem silbernen Totenkopf, die sie anfangs des russischen Feldzuges getragen haben. **H2** Bemerkenswert ist das etwas unterschiedliche Kragen- und Vorderjackenform der Waffen-SS-einheit. Nur bei der LAH wurde der Kragen der im Fahrzeug getragene Uniform mit der Silbertresse des Unteroffiziers geziert. **H3** Typische Uniform der späteren Kriegesperiode; die schwarzen Tuchabzeichen am Kragen und die Achselklappen, mit zusätzlichem Panzerjäger bezeichnendem 'P' sind jetzt im gebrauch. Im Jahre 1943 wurde die Feldmütze durch die Einheitsfeldmütze ersetzt. Bemerkenswert ist die Verzierung des 'Kuban'-Schild am Ärmel. **H4** Es waren nur die SS-truppen, die mit dem einteiligen, aus Tarnstoff hergestellten Überkleid für Panzer und Sturmgeschützmannschaften ausgestattet waren.

Notes sur les planches en couleur

A (en haut et en bas) Vue de gauche et de droite de l'intérieur du compartiment de combat d'un canon d'assaut automoteur StuG.III Ausf.G. L commandant et le canonnier regardent par leur périscope individuel d'observation; le chargeur illustré dans l'image inférieure porte la veste de camouflag réversible utilisée en hiver et l'*Einheitsfeldmütze*; des obus supplémentaires son rangés devant son matériel de radio. Notez les MP.40 et les grenades sur l paroi arrière, prêts à être utilisés dans le combat corps à corps.

B (en haut) La tête de mort est l'insigne du StuG.Abt.192, le numéro identifi le canon individuel et le 'S' indique le *'Stab'* ou le quartier général de la batterie. Il est très inhabituel mais pas impossible de voir la version grise du béret des Panzers dans des photos prises au front; un sous-officier de cette unité l'aurait certainement portée. **(en bas)** Sur ce véhicule, un des insignes stencilés de l'*Abteilung* est tourné vers la gauche et l'autre vers la droite.

C (en haut) Insigne tactique de la 1. Batterie; l'insigne divisionnaire temporaire du 'Das Reich' adopté pour la campagne de Kursk; et la croix nationale, apparaissent tous sur l'arrière sur la carrosserie. **(en bas)** Le symbole noir des SS n'était pas l'emblème officiel de cette division, mais il paraît dans un grand nombre de photos des StuG.III en Italie. Le détail en médaillon montre une version inhabituelle de la croix nationale apparente sur l'arrière de la carrosserie d'un de ces canons.

D Insignes remarqués sur le StuG.III (1) StuG.III Ausf.D, StuG.Abt.189, Russie 1941. (2) StuG.III Ausf.G, StuG.Brigade 286, Russie 1943–44. (3) Carrosserie arrière, StuG.III Ausf.G, StuG.Bde.259, Russie 1943–44. (4) Carrosserie, côté droit, StuG.III Ausf.F, Pz.Gren.Div. 'Grossdeutschland', Russie 1943. (5) Carrosserie arrière, unité inconnue, Russie 1943. (6) Carrosserie côté droit, StuG.III Ausf.F, StuG.Bde.191, Russie 1943. (7) Carrosserie côté droit StuG.III Ausf.F, StuG.Bde.203, Russie 1943. (8) Côtés de la carrosserie, StuG.III Ausf.G, 8.SS Kavallerie Div. 'Florian Geyer', Russie, hiver 1943: un usage très inhabituel du nom divisionnaire sur un véhicule. (9) Décoration d'une unité inconnue, répétée sur tous les véhicules d'au moins une batterie; le véhicule au premier plan de la photographie originale porte la marque 'III' en rouge bordé de blanc sur la jupe cuirassée. (10) Insignes de carrosserie avant et arrière, StuG.III Ausf.E, 2 Batterie, StuG.Abt.249, Crimée, été 1942—le 'B' semble identifier le canon individuel. (11) Des types d'insignes utilisés sur les canon de la compagnie de canons d'assaut 'Leibstandarte SS Adolf Hitler' en 1940 (à gauche) et en 1941. (12) Insigne divisionnaire temporaire porté par les canons de la 3.SS Pz.Div. 'Totenkopf' pour la campagne de Kursk en juillet 1943.

E Cette planche montre l'intensité variable du camouflage en vert foncé et marron foncé peint par dessus la peinture jaune ochre appliquée à l'usine sur des modèles différents de canons antichars automoteurs *Marder*.

F Cette photo montre quatre combinaisons de couleurs et de marques utilisées sur le canon d'assaut *Brummbär*. Il n'a été possible d'identifier avec certitude que quelques unités utilisant ce canon. Notez les détails du compartiment du pilote et la mitrailleuse supplémentaire montée sur affûtage sphérique sur le dernier véhicule. Notez également les couches de plâtre *'Zimmerit'* d'épaisseur variable.

G1 Un véhicule bien connu mais important—un exemple très rare à ce stade de la guerre de l'usage de tous les symboles divisionnaires et tactiques sur un même véhicule de combat blindé. **G2** Notez l'intéressante combinaison de couleurs peintes en 'peau de léopard'. **G3** Très peu de combinaisons de couleurs et de marques ont été publiées pour ce véhicule élégant. Cet exemple a été tiré d'une photo, mais il n'est pas identifié. Notez le marquage 'quadrillé' du plâtre *'Zimmerit'*.

H1 Ce sous-officier porte l'uniforme et l'insigne typiques d'une unité de canon d'assaut. Les écussons, qui variaient beaucoup dans cette branche de l'armée, sont d'un type qui a été adopté officiellement à partir de 1942. Beaucoup de militaires avaient gardé les écussons vertes, bordés de rouge et garnis d'une tête de mort en argent, qui étaient portés au début de la campagne russe. **H2** Notez la forme légèrement différente du col et du devant de la veste portée par l'unité des Waffen-SS. Le col de la veste d'uniforme de véhicule n'était gansé du galon d'argent d'un sous-officier que dans la division 'LAH'. **H3** Uniforme typique porté à la fin de la guerre; les écussons noirs des Panzers et les épaulettes sont maintenant utilisés, avec l'addition d'un 'P' sur les épaulettes signifiant *'Panzerjäger'*. L'*Einheitsfeldmütze* de 1943 a remplacé le calot. Notez bouclier 'Kuban', décoration portée sur le bras. **H4** Les troupes de SS étaient les seules à recevoir une combinaison en tissu de camouflage spécialement conçue pour les équipages de char et de canon d'assaut.

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2. Panzer-Grenadier Division 'Grossdeutschland'
3. US 1st Infantry Division
4. Fallschirmpanzerdivision 'Hermann Göring'
5. US 101st Airborne Division
6. The Lee/Grant Tanks in British Service
7. 2nd SS Panzer Division 'Das Reich'
8. US 1st Marine Division
9. British Guards Armoured Division
10. Allied Tank Destroyers
11. US 2nd Armored Division
12. Sturmartillerie and Panzerjäger

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